U.S. Department of the Interior
Bureau of Land Management

Medford District Office
3040 Biddle Road
Medford, Oregon 97504

March 1995

Medford District Timber Salvage Project

Finding of No Significant Impact (FONSI)

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interest of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.

BLM/OR/WA/EA-95/014+1792

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
MEDFORD DISTRICT OFFICE
3040 BIDDLE ROAD
MEDFORD, OREGON 97504

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
1792(11000)
M1031(CB:cs)

Dear Interested Citizen:

The Medford District recently completed an environmental analysis (EA) and I have signed a Finding of No Significant Impact (FONSI) for the Medford District Timber Salvage Project. The proposed action for this project is to salvage stage 1 snags and trees showing indications they will be dead within two years. Only trees that are in excess of those needed to meet the requirements for coarse woody debris to maintain soil productivity and snags needed for wildlife habitat as established in the Record of Decision and Standards and Guidelines (ROD) for the Supplemental Environmental Impact Statement for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl (FSEIS) would be harvested. Up to 35,000 acres of BLM managed Matrix and Adaptive Management Area (AMA) lands could be directly affected by the salvage operations over the next three years. It is anticipated that 75 to 85 percent of the volume would be yarded to landings by helicopter.

Before I make the final decision to proceed with this project, we would like to know if we have missed any significant impacts, as defined under 40 CFR 1508.27, that were not addressed by the EA or the FSEIS. If you are aware of any significant impacts that have been missed, please submit your comments to the Charles Boyer, Bureau of Land Management, Medford District, 3040 Biddle Road, Medford, Oregon 97504. Please return you comments by April 11, 1995.

A copy of the EA and FONSI are enclosed for reference while you review the proposed project.

Sincerely,

David A. Jones
District Manager

2 Enclosures (as stated)

FINDING OF NO SIGNIFICANT IMPACT (FONSI)
for
MEDFORD DISTRICT TIMBER SALVAGE PROJECT

ENVIRONMENTAL ASSESSMENT NUMBER
OR-110-94-35

The Medford District is proposing to salvage stage 1 snags and trees showing indications they will be dead within two years. Only trees that are in excess of those needed to meet the requirements for coarse woody debris to maintain soil productivity and snags needed for wildlife habitat as established in the Record of Decision and Standards and Guidelines (ROD) for the Supplemental Environmental Impact Statement for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl (FSEIS) would be harvested. Up to 35,000 acres of BLM managed Matrix and Adaptive Management Area (AMA) lands could be directly affected by the salvage operations over the next three years. Map 5 of the environmental assessment (EA) show the general areas analyzed for salvage. It is anticipated that 75 to 85 percent of the volume would be yarded to landings by helicopter.

An interdisciplinary (ID) team analyzed the impacts of the proposed action along with two other alternatives, No Action and Harvest Only Dead Trees, in EA No. OR-110-94-35. The EA is tiered to the FSEIS and is consistent with the Jackson/Klamath and Josephine Management Framework Plans, as amended, and with the proposed Medford District Resource Management Plan/Environmental Impact Statement (PRMP/EIS). The estimation of impacts was based on research, professional judgement, and experience of the ID team. (Their findings are summarized on page 12 of the EA and presented in detail in Chapter IV of the EA.) This method of estimating affects on the environment reduces the uncertainties to a level which does not involve highly unknown or unique risks. The features common to all action alternatives in the attached EA would assure that no significant site specific or cumulative impacts would occur to the human environment other than those already covered in the EISs to which it is tiered.

A biological assessment has been prepared covering Northern Spotted Owls, Marbled Murrelets, Bald Eagles, and Peregrine Falcons. The determinations were "may affect, not likely to adversely affect" for Northern Spotted Owls and Marbled Murrelets and "no affect" for Bald Eagles and Peregrine Falcons.

There are no floodplains, wild and scenic rivers, known hazardous waste areas, areas of religious concern, prime nor unique farmlands within the sale area. Wetlands and riparian reserve areas would be protected by not entering any of the protection buffers along their borders. The sale area does not qualify for potential wilderness designation. No adverse or beneficial significant impact is anticipated to fisheries, lands, and minerals. Known

threatened or endangered plant populations, cultural resource sites, or paleontological resource sites would avoided by any ground disturbing activities. Should threatened or endangered plants or cultural or paleontological resources be discovered during implementation they would be protected by avoidance.

The public notice of the availability of this FONSI is provided through the BLM Medford District's central registration and advertised in the Medford Mail Tribune, the Ashland Daily Tidings, and the Grants Pass Courier.

FONSI DETERMINATION

I have reviewed Environmental Assessment No. OR-110-94-35, including the explanation and resolution of any potentially significant environmental impacts not previously identified. I have determined that the action described above will not have any significant impacts on the human environment beyond those already fully described in the Final Supplemental Environmental Impact Statement for the Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl and the Proposed Final Medford District Resource Management Plan and Environmental Impact Statement and that a supplemental EIS is not required. I have also determined that the proposed project is in conformance with approved land use plans.

David A. Jones
Medford District Manager

3-7-95
Date

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UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MEDFORD DISTRICT

ENVIRONMENTAL ASSESSMENT

OR-110-94-35

MEDFORD DISTRICT TIMBER SALVAGE PROJECT

February 24, 1995

Responsible Individual: David A. Jones
Medford District Manager

Contact for Further Information: Charlie Boyer
Environmental Coordinator
Bureau of Land Management
Medford District
3040 Biddle Road
Medford, Oregon 97504
(503) 770-2262

Abstract:

This Environmental Assessment (EA) analyzes three alternatives concerning the harvest of dead and dying trees from approximately 90,000 acres of Matrix and Adaptive Management Area (AMA) lands in the Medford District. The alternatives being considered are: No Action, Salvage Dead Trees Only, and Salvage Dead Trees and Trees Expected to be Dead in Two Years. The areas being considered in these alternatives are the low elevation areas which have shown the greatest impacts due to drought, environmental stress, and insect damage. After applying the various land protection criteria such as Riparian Reserves to the 90,000 acres in the proposed project area, 41,000 acres remain available for possible salvage under the two action alternatives. It is anticipated that under the two action alternatives a minimum of 75-85 percent of the total volume would be yarded to landings by helicopters. The remaining 15-25 percent could be yarded by various cable yarding systems.

The purpose behind the proposed action is the need to salvage excess dead and dying trees as soon as possible to reduce the amount of high quality wood lost through deterioration. Dead and dying trees loose merchantability quite rapidly, and beyond a certain point it is no longer economical to harvest these trees and use them to help meet the human demands for wood.

The EA analyzes impacts of each of the alternatives on the major issues of rural interface, fire hazards, wildlife (including threatened and endangered species), soils, ecosystem processes, and economics. It addresses the direct and indirect effects, cumulative effects, relationship of short-term uses and long-term productivity, and irreversible and irretrievable commitments of resources of each alternative on each major issue.

Key Words: Salvage, Logging, Timber Sales,

MEDFORD DISTRICT SALVAGE SALE

ENVIRONMENTAL ASSESSMENT

EA #: OR-110-94-35

I. Purpose Of And Need For Action

A. Introduction

Severe drought for the past eight years in southwestern Oregon, combined with over dense conditions in many of the forests, has weakened trees throughout portions of the Medford District of the Bureau of Land Management (BLM). See Map 1 for the general location of the Medford District and the resource area boundaries. Weakened trees become ready targets for insects and pathogens which affect tree vigor and health. The combined effects of environmental stress and attacks from insects and disease have resulted in a drastic increase in tree mortality on more than 300,000 acres of the 866,300 acres in the Medford District (Armitage, et al 1993, p. 40). Map 2 shows areas in the Medford District with high levels of tree mortality.

Some of the lands containing trees which are either dead or dying from environmental stress are in areas identified as "Matrix Lands" and "Adaptive Management Areas" (AMA) by the Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl (FSEIS) (U.S. Forest Service and Bureau of Land Management 1994, pp. S-8,9; 2-24,25). Map 3 shows Matrix and AMA lands in the Medford District. (Larger scale maps are available for review or purchase at the Medford District Office.)

Matrix lands are those federal lands outside of areas identified in the Record of Decision (ROD) for the FSEIS with special restrictions because of other resource values. Portions of the Matrix Lands are available for timber production and other silvicultural activities, as long as the Standards and Guidelines included in the ROD are followed (U.S. Bureau of Land Management and U.S. Forest Service 1994, pp. 7,10, C 39).

Adaptive Management Areas are those federal lands within the boundaries of one of the ten areas designated in the ROD to encourage development and testing of technical and social approaches to achieving desired ecological, economic, and other social objectives. Adaptive Management Areas are expected to produce timber as a part of their program of activities consistent with their specific direction under the Standards and Guidelines included in the ROD (pp. 6, C 21, D 8).

The Medford District is proposing to salvage a portion of the dead and dying trees from Matrix and AMA lands which are in excess of the requirements for snags needed to maintain wildlife habitat as established in the ROD and coarse woody debris standards identified in Appendix H to help maintain soil productivity. The Matrix and AMA lands being considered available for salvage logging are those areas outside of key watersheds, riparian reserves, Medford District deferred watersheds, and lands in the Ashland Resource Area that were salvage-logged between the years of 1991 and 1993. Map 4 shows areas potentially available for salvage. Most of the harvesting would be accomplished with helicopters. Some ground-based logging activities could occur on areas where the operations could be conducted from existing roads that do not require ground-disturbing activities to allow access. The proposed logging operations could take place over a two- or three-year period.

The major reason for proposing the logging of the dead and dying trees is to make available the wood materials for human use while still usable. Within a few years, the wood in the large numbers of trees that are dying as a result of drought and environmental-stress-related issues will not be suitable for most human uses. As the amount of merchantable wood declines in the dead and dying trees, logging operations become less and less economically feasible.

B. Conformance with Existing Land Use Plans

The proposed action and alternatives to salvage dead and dying timber from the Matrix and AMA lands in the Medford District are in conformance with the Jackson/Klamath Sustained Yield Management Framework Plan, as amended, and the Josephine Sustained Yield Unit Management Framework Plan, as amended. Both management framework plans were amended by the Record of Decision (ROD) for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl and the Standards and Guidelines for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl. The ROD and Standards and Guidelines are a result of the Final Supplemental Environmental Impact Statement for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl (FSEIS). The ROD states that the Matrix lands are the lands where most timber harvest and other silvicultural activities would take place (pp. 7, 10, C 39) and a portion of the timber harvest will come from the AMA lands (pp. 6, D 8). The ROD and Standards and Guidelines for the SEIS have been incorporated into the Final Medford District Proposed Resource Management Plan/EIS (RMP/EIS). Therefore, the proposed action and alternatives are in conformance with the RMP/EIS (U.S. Bureau of Land Management 1994, RMP/EIS, pp. 1-5).

C. Relationship to Statutes, Regulations, and Other Plans

The proposed action and alternatives are in conformance with the direction given for the management of public lands in the Medford District by the Federal Land Policy and Management Act of 1976 (FLPMA) and the Oregon and California Lands Act of 1937

(O&C Act). The Federal Land Policy and Management Act states, BLM lands shall be managed on the basis of multiple use and sustained yield, unless otherwise specified by law. The BLM is directed to manage the lands covered under the O&C Act for permanent forest production under the principals of sustained yield. BLM is also required to comply with many other environmental and conservation acts, such as the Endangered Species Act of 1973 and the Water Pollution Prevention and Control Act, while implementing the mandates given by FLPMA and the O&C Act.

This environmental assessment (EA) is being prepared to determine if the proposed action and any of the alternatives would have a significant effect on the human environment thus requiring the preparation of an environmental impact statement (EIS) as prescribed in the National Environmental Policy Act of 1969. It is also being used to inform interested parties of the anticipated impacts and provide them with an opportunity to comment on the various alternatives.

The FSEIS analyzed the environmental effects of 10 alternatives for managing the resources on BLM lands west of the Cascade Mountains. The ROD selected Alternative 9 for implementation. The analysis in the FSEIS determined that the Matrix and AMA lands in the Medford District would be available for timber harvest as long as certain standards and guidelines were followed. This EA will be subordinate to the FSEIS and will not reanalyze the decisions made in the ROD.

D. Decisions to be Made Based on this Analysis

The Medford District Manager must decide if the impacts of implementing the proposed action or the alternatives would result in significant effects to the human environment thus requiring that an Environmental Impact Statement (EIS) be prepared before proceeding with the salvage operations. He must also decide if BLM should salvage dead and dying trees at this time. If he should decide to select one of the action alternatives, the analysis in this EA would be used to help determine where salvage could occur, how many dead and dying trees could be removed, and how the logging operations would be conducted.

E. Summary of Scoping Activities

During the spring months of 1994, Medford District hosted discussion sessions to open a dialogue on the potential to salvage dead and dying trees. These sessions were attended by representatives from environmental organizations, industry, U.S. Forest Service (USFS), U.S.Fish and Wildlife Service (USFWS), and BLM.

News articles in the Medford *Mail Tribune* (June 20 and 26, 1994) and the Grants Pass *The Daily Courier* (June 23 and 25, 1994) discussed the BLM's plans to analyze the effects of harvesting dead and dying trees.

On August 1, 1994, a public information update on active and proposed projects in the Medford District was mailed to more than 1,100 addresses in Oregon. This mailing

resulted in six requests to be added to the mailing list for the Medford District Timber Salvage Project.

Legal notices stating that BLM was initiating an EA to assess the effects of salvaging dead and dying trees appeared in the major newspapers in Jackson, Josephine, and Douglas counties in early August 1994. In the legal notices, the public was asked to identify issues, concerns, and opportunities for salvage. Letters containing the same information as the legal notices were mailed to 54 organizations and individuals. These efforts resulted in 11 written responses. Five responses supported salvaging dead and dying trees. Two responses were neutral on salvage logging. Four responses listed specific concerns the authors wanted to bring to the attention of BLM which might be interpreted as being against salvage logging.

Two open houses were held to discuss the proposed salvage program. An open house in Medford was held on August 30, 1994, and one in Grants Pass on August 31, 1994. A total of fifteen individuals attended the two open houses. Five individuals supported the salvage proposal. Seven individuals, while not against the salvage proposal, had specific concerns about the program. Three individuals were against salvaging dead and dying trees at this time.

Informational articles, along with requests for comments from the public also appeared in local newsletters of organizations such as the Applegate Partnership which was sent to about 9,000 postal patrons throughout the Applegate River Valley. No public responses were received as a result of these actions.

F. Issues of Concern

The following issues were identified through the scoping process. Not every issue was analyzed in detail by this EA. All of the issues were reviewed by an interdisciplinary team of specialists. Some issues were identified as major concerns and are addressed in detail in this EA. Other issues were considered to be outside the scope of this EA and are not analyzed in detail.

1. Major Issues

a. Rural Interface

Noise: Operation of helicopters, skidders, loaders, trucks, and chainsaws would cause noise which may affect the residents living in the rural interface areas.

Traffic Safety: Logging trucks would cause increased traffic on some roads in the rural interface.

b. Fire Hazard

Logging operations have the possibility of increasing the amount of slash on the forest floor which may increase the fire hazards. Removal of some dead and dying trees in the rural interface areas may lower the fire hazard. Active logging operations increase the risk of wildfire during dry conditions.

c. Wildlife - Including Threatened and Endangered Animals

Construction Activities: Building of helispots, landings, and road spurs may decrease habitat for a range of wildlife species. Use of these sites for logging operations would disturb wildlife until the logging operations have ceased.

Removal of Trees: Removal of individual dead and dying trees would result in habitat losses for some wildlife species that depend on snags and down woody debris for food and shelter.

Noise: Helicopter operations and other logging operations would result in localized, short-term noise disturbances affecting big game and nesting birds.

d. Soils

Soil compaction and displacement would increase in areas where road and landing construction, felling, and skidding operations occur. There may be some long term soil production loss due to removal of coarse woody debris.

e. Ecological System Processes

Road and landing construction activities and removal of dead and dying trees could have effects on the overall processes of the ecosystem. Removal of dead and dying trees could effect ecosystem processes that use these materials.

f. Economics

Salvaging dead and dying trees could provide income to the local and regional economies.

2. Issues Considered But Not Analyzed in Detail

Many issues were raised during the interdisciplinary (ID) team meetings, from the comments received during the open houses, and in response to the letters mailed to inform citizens about the proposed project. After discussing these issues, the ID Team determined, that while these issues and concerns were real, many were outside the scope of this EA and others were not major issues that would affect the human environment. These issues and concerns are listed in Appendix A.

II. Alternatives Including the Proposed Action

A. Introduction

The Medford District has developed an array of alternatives to achieve the project objectives of salvaging dead and dying trees from the Matrix and AMA lands. After receiving comments from the public through the scoping process, the alternatives were developed by a diverse team of resource specialists. See Chapter V for a list of preparers for this EA.

This chapter contains:

- a discussion of alternatives considered but dismissed from further analysis;
- a description of the No-Action Alternative;
- a description of the features common to all action alternatives;
- a description of each action alternative;
- a comparison of how each alternative affects the major issues listed in Chapter I.

B. Alternatives Considered But Dismissed from Further Analysis

In addition to the alternatives analyzed in detail in this EA, the ID team considered several other alternatives that may have met the objectives of salvaging dead and dying trees in the Medford District. A description of each alternative considered and why it was dismissed from detailed analysis is given in Appendix B.

C. Alternatives Examined in Detail

1. Alternative 1 - No Action

For this EA, the No Action alternative is defined as not harvesting any dead or dying trees from the proposed action area. Forest management would continue at the present levels under this alternative. The current death and decay processes affecting trees in the action area would be allowed to continue at this time. Analysis of this alternative provides a baseline against which the effects of the action alternatives can be compared. Selecting of the No Action Alternative does not preclude the implementation of timber sale projects from occurring in the future that could remove dead and dying trees from the landscape.

2. Action Alternatives

The overall scope of the action alternatives covers approximately 41,000 acres of public lands. Map 5 shows an area covering 90,000 acres which is the Salvage Gross Acres covered by this EA. Due to the limitations of the geographic information system, this map shows more acres than are actually available for salvage. The difference in acreages is a result of losses of potential salvage areas within the mapped areas to riparian reserves, roads, nonsuitable woodland areas, and other set-aside areas. Table 2-1 shows the acres available for salvage logging by resource area.

Table 2-1: Approximate acres available for salvage logging by resource area.

Resource Area	Area Gross Acres	Salvage Gross Acres	Salvage Net Acres
Glendale	159,000	0	0
Grants Pass	250,000	45,000	21,000
Butte Falls	206,000	26,000	11,000
Ashland	244,000	19,000	9,000
TOTAL ACRES	859,000	90,000	41,000

a. Features Common to All Action Alternatives

1. No new system roads would be constructed. Construction of landings and spur roads would be limited to those necessary for operational concerns. Any construction would be limited to the dry season (generally May 15 to October 15). Any landing or spur road construction needed would be located outside of riparian reserves,and away from unstable soil conditions, and headwalls.

2. All newly constructed spur roads would be blocked upon completion of the project. All drainage structures would be properly functioning prior to blocking. If no future access is needed, road obliteration or decommissioning would be required on all new spur roads. If it is determined that a spur road is needed for future access, it would be either adequately surfaced or decommissioned.

3. No log hauling would occur on unsurfaced or inadequately surfaced roads during wet conditions. Surface rocking to a depth consistent with the California Bearing Ratio (CBR) values for the subgrade with a rutting allowance of 2 inches would be required for winter or all-season hauling.

4. Cable yarding to existing roads during wet weather conditions would be restricted to minimize soil compaction, gouging and channelized flow. On fragile soil types, such as decomposed granitic and schist soils, lining operations would be restricted to slopes of less than 35 percent.

5. Helicopter logging methods would be used to retrieve 75-85 percent or more of the volume. Cable yarding equipment could be used to log 15-25 percent of the volume from existing useable roads. Useable roads are those that are accessible by regular 4x4 pickups without needing ground-disturbing improvements.

6. Pre- and post-harvest sampling would be conducted to determine the number of snags and amount of down woody debris on the salvage units. All sales would be marked using the general marking guidelines which are available for review at the Medford District Office. Appendix C contains the proposed monitoring plan.

7. The scope of this analysis is for a single entry into any given area. No additional salvage logging would occur without an additional environmental analysis. Any additional marking would be for operational needs only (landings, flight paths, OSHA standards, etc.)

8. Salvaging timber from any area affected by catastrophic events (i.e., wildfire and windthrow areas larger that 5 acres) would need separate environmental analyses.

9. No trees would be salvaged from riparian reserves.

10. The project area would be inventoried for cultural sites. Direct impact areas such as landings or road spurs would receive an intensive survey prior to construction. See Appendix D for a description of the cultural resource clearance procedures.

11. Threatened and endangered (T&E) plant surveys of the project area would be conducted. Areas that would be impacted by spur or landing construction would receive an intensive survey prior to construction. Appendix F contains a description of the T&E plant clearance procedures.

12. All slash created by the salvage logging operation that is over 1 inch in diameter and extends over 18 inches above the ground would be lopped and scattered concurrently with normal felling operations.

13. All helicopter operations under 1000 feet above the ground within one and one-half miles of any residence would be restricted to an operating time of Monday to Friday, 8 a.m. to 5 p.m.

14. Access roads near residential properties would be posted to warn residents of air operations.

15. The purchaser would be required to clean up all trash resulting from their operations.

16. Retention of snags to meet 100 percent of the population potentials of cavity dependent species would be required on lands classified as "suitable woodland commercial forest land" under the Timber Production Capability Classification system (TPCC). On TPCC lands classified as "commercial forest," snags would be maintained at or above the 60 percent population level. Surveys would be established in proposed salvage areas to measure quantity of various sizes and decay classes of standing dead and downed wood and to aid in establishing marking guidelines to maintain target levels of wildlife trees. (Information Bulletin No. OR-110-83-02.)

17. No salvage operations within the 100 acre core area (one-quarter mile) of known spotted owl sites. No helicopter operations would be conducted within one-half mile of known owl centers of activity from March 1 through May 15 to prevent disturbance to nesting spotted owls. No salvage would occur within spotted owl critical habitat.

18. All new fill slopes would be seeded and mulched in the fall immediately following the logging operation.

19. No operations would be conducted within the Marbled Murrelet area, FEMAT Murrelet Zone 1 (FMZ) - 35 miles of the coast (Marbled Murrelet areas are shown on Map 6). No salvage

logging would occur within Murrlet critical habitat. A seasonal restriction on all disturbance from April 1 through September 15 would be imposed within a 1/2 mile radius for any Murrelet sites found within FMZ-2 (35 to 50 miles from the coast).

20. A fuel hazard and wildfire risk assessment would be conducted during post-harvest evaluations of project sites to determine the need for fuel hazard or risk reduction treatments.

21. There would be no salvage logging within 250 feet of any known Townsends big-eared bat sites.

22. No salvage would occur within 1/4 mile of any Bald Eagle nest or be allowed within 1 mile of any Bald Eagle nest from February 1 to August 15.

23. No salvage would occur within 2 miles of the one known Peregrine Falcon nest site. For any newly discovered nest sites, there would be a 1/2 mile no-cut zone, and no-harvest activities would be allowed within 1 1/2 miles of the nest site from January 1 to July 15.

24. No ground disturbing activities within the 140 to 300 foot wide riparian reserves would occur except that needed to maintain existing roads and landings.

b. **Alternative 2 - Salvage Dead Trees Only**

This alternative would harvest Stage 1 snags in excess of those needed to meet the requirements for coarse woody debris and snags for maintenance of wildlife habitat and soil productivity on Matrix and AMA lands as established in the ROD (pp. C 40-43 and D 10) and BLM land use plans. See Appendix G for different snag classes. A standardized set of marking guidelines would be used in all areas being considered for salvage logging. Matrix and AMA lands that would be considered available for salvage logging are TPCC "commercial forest lands" and "suitable woodland commercial forest lands" outside of key watersheds, riparian reserves, Medford District deferred watersheds, and lands in the Ashland Resource Area that were salvage-logged between 1990 and 1993. Map 5 shows the general areas of the Medford District which would be potentially available for harvest under this alternative.

Some green trees would be harvested for safety and operational reasons during the implementation of this alternative. The green trees harvested for safety reasons would be those considered hazard trees under

guidelines established by the Oregon State Occupational Safety and Health Administration (OSHA). The green trees harvested for operational purposes would be limited to those that needed to be removed to facilitate the construction of landings, helispots, and spur roads.

Merchantable coarse woody debris in excess of the amounts identified as minimum levels in Appendix H could be removed as part of the harvesting activities.

c. Alternative 3 - Salvage Dead and Dying Trees (Proposed Action)

This alternative would harvest stage 1 snags and trees showing indications they will be dead within two years and are in excess of those needed to meet the requirements for coarse woody debris and snags for maintenance of wildlife habitat and soil productivity on Matrix and AMA lands as established in the ROD (pp. C 40-43 and D 10) and BLM land use plans. See Appendix G for different snag classes. A standardized set of marking guidelines would be used in all areas being considered for salvage logging. Matrix and AMA lands that would be considered available for salvage logging are TPCC "commercial forest lands" and "suitable woodland commercial forest lands" outside of key watersheds, riparian reserves, Medford District deferred watersheds, and lands in the Ashland Resource Area that were salvage-logged between 1990 and 1993. Map 5 shows the general areas of the Medford District that would be potentially available for harvest under this alternative.

Some green trees would be harvested for safety and operational reasons during the implementation of this alternative. The green trees harvested for safety reasons would be those considered hazard trees under guidelines established by the OSHA. The green trees harvested for operational purposes would be limited to those that needed to be removed to facilitate the construction of landings, helispots, and spur roads.

Merchantable coarse woody debris in excess of the amounts identified as minimum levels in Appendix H could be removed as part of the harvesting activities.

3. Alternative Comparison

The Table 2-2 below compares how the alternatives affect the major issues identified in Chapter I. This table is only a summary of expected effects. Detailed analysis is contained in Chapter 4, Environmental Consequences.

Table 2-2: Comparison of how each alternative affects the major issues. A detailed analysis is contained in Chapter IV.

	Alternative 1- No Action	Alternative 2- Dead Trees Only	Alternative 3- Dead and Dying Trees
Area considered available for salvage logging	0	41,000 Acres	41,000 Acres
Area that would be treated	0	15,000 - 25,000 acres	20,000 - 35,000 acres
Estimated timber volume that would be harvested	0	8 - 15 mmbf	20 - 30 mmbf
Rural Interface - Noise	No additional noise	Chain saw, truck, and helicopter noise would occur for varying periods	Up to twice as much chain saw, truck, and helicopter noise could be expected as in Alternative 2
Rural Interface - Traffic Safety	No increases in truck traffic	Approximately 1,600 to 3,000 round trips of truck traffic	Approximately 4,000 to 6,000 round trips of truck traffic
Fire Hazard	No impact; trend for increasing high hazard conditions continues.	No impact; trend for increasing high hazard conditions continues.	No impact; trend for increasing high hazard conditions continues.
Wildlife and Threatened and Endangered Animals	No loss of habitat; no additional disturbance from noise or other human activities	Decrease of cavity nesting habitat; minimal decrease of future coarse woody debris habitat; increase in disturbance by noise and human presence	Decrease of cavity nesting habitat; decrease of some future coarse woody debris, slower recruitment of snags and coarse woody debris; more prolonged disturbance from traffic and human disturbance
Soils	No increase of soil erosion; minor increase on available coarse woody debris in the short term	Minimal increase in localized soil erosion; minimal decrease in coarse woody debris in the short term	Some increase in localized soil erosion; minor decreases in coarse woody debris in the short term
Ecological System Processes	No change in the ecosystem processes	Some reduction in the number of snags and amount of woody debris available to provide habitat and nutrients for life forms using the ecosystem	Some reduction in the number of snags and amount of woody debris available to provide habitat and nutrients for life forms using the ecosystem
Economics	No income to U.S. Treasury; no jobs created; no economic value created	$816,000 to $6,045,000 to U.S. Treasury; 75 to 140 jobs created; $1,637,000 to $3,069,000 economic value created	$2,040,000 to $12,090,000 to U.S. Treasury; 187 to 280 jobs created; $4,092,000 to $6,138,000 economic value created

III. Affected Environment

A. Introduction

This chapter describes the present condition of the environment within the proposed project area that would be affected by the alternatives. The information in this chapter will serve as a general baseline for determining the effects of the alternatives. No attempt has been made to describe every detail of every resource within the proposed project area. Only enough detail has been given to determine if any of the alternatives would cause significant impacts to the human environment as defined in 40 CFR 1508.27. The information is organized around the major issues.

B. General Description of the Proposed Project Area

The proposed project area contains 90,000 acres of Matrix and AMA lands managed by the Medford District BLM. Of the total within the proposed project boundaries, only 41,000 acres would be affected by the action alternatives because of the restrictions against salvaging any dead or dying trees from the riparian reserves along streams and around wetlands, roads, and other areas not available for logging.

The area of consideration for salvage logging lies mostly in the lower elevation BLM lands adjacent to the interior valleys of the major river and stream drainages. These areas tend to be the fringe areas for many timber types and, as a result, are more susceptible to adverse impacts resulting from environmental stress (See Map 5).

The elevations for the proposed project area range from less than 1,000 feet to about 5,000 feet above sea level. The area is in a rain shadow from the Siskiyou and Coast ranges. This causes the area to be drier than most areas west of the Cascade Mountains. Most of the precipitation comes in late fall, winter, and early spring in the form of rain, although some short term snow accumulations do occur. The summers tend to be hot and dry with low humidities. For example, the average annual precipitation at the Medford Airport is 19.84 inches. Summer high temperatures average 90 degrees fahrenheit with an extreme of 113 recorded in 1992 at the Medford Airport. Precipitation and temperatures can vary considerably across the project area due to elevation and aspect differences.

A ten-year period of lower than average precipitation (record low of 8.87 inches at the Medford Airport for 1994 water year) in southwestern Oregon coupled with higher than historical tree and other vegetation densities has magnified the normal mortality rates in the plant communities on drier sites. Increased environmental stress on trees in these areas has made them more susceptible to death from insect infestations. (See Map 2 for areas of high insect activity in 1990. Similar maps are available for review at the Medford District Office.)

The topography in the study area ranges from nearly flat lands near the valley floors to very steep slopes along some of the side canyons.

The land ownership pattern is described as "checkerboard." This means that BLM and private lands are intermixed across the landscape. Many of the sections between the BLM lands are owned by large timber corporations or ranches. These ownership patterns have lead to the traditional primary uses of the area for timber production and livestock grazing. In the last several years, more and more of the area has been sold in smaller parcels and serves as homes for people who work in one of the nearby communities. This is causing a reduction in amount of lands being used for timber and livestock production and more emphasis on recreation and scenery.

Four primary major plant series exist on the proposed project area: White Oak, Ponderosa Pine, Douglas-fir, and Tanoak (Atzet and Wheeler 1984). The actual plant groupings on these vegetative series have been influenced by a wide range of management activities implemented by all landowners. The three most important management activities to affect the vegetation are past and current fire protection, lack of density management, and logging activities. Fire protection and lack of density management have lead to an increase in the overall densities of the vegetation occupying the landscape thus magnifying the effect of any changes in the environmental conditions such as prolonged periods of drought.

A more detailed description of the land areas and resources in the Medford District is presented in Chapter 3 of the Final Medford District Proposed Resource Management Plan/Environmental Impact Statement (RMP/EIS, pp. 3-1 through 3-122 and Map 3-6).

C. Rural Interface

Rural interface area (RIA) lands are those where rural residential and/or farm/forest zoning occur near BLM-administered lands. Private RIA lands are those that are within one-quarter mile from adjoining BLM administered lands. Public RIA lands are BLM administered lands within one-quarter mile from lands zoned rural, rural residential, or farm/forest (RMP/EIS, pp. 2-55, Map 2-7). The Summary for the Final Medford District Proposed Resource Management Plan/EIS states: "Resource management will be altered where feasible, on ... BLM-administered land within one-quarter mile of lands in identified RIAs ... to mitigate neighbors' concerns." (RMP/EIS. Summary pp xv). The area encompassed by the proposed action contains about 90,000 acres of BLM managed lands of which approximately 33,000 acres fall within the one-quarter mile areas of concern for rural interface areas.

Southwestern Oregon continues to experience substantial growth in population. Many of the immigrants are coming from urban areas outside the region and are settling in RIAs. As the local populations have increased, there has been a shift in the percentage of the population employed in the production industries to the service

industries. The increase in the percentage of the population with urban backgrounds and reduced ties to resource commodity production as an employment source are causing residents and visitors to place a higher value on aesthetics, recreation, and wildlife. Increasing percentages of the population commute to urban employment sites (U.S.D.I., Bureau of Land Management, Medford District et al. 1994).

D. Fire Hazard

The forest communities in the analysis area are mainly within the Interior Valley Zone, with some areas in the Mixed Conifer Zone and Mixed Evergreen Zone (Franklin and Dyrness 1973, p. 131). The forest communities in the analysis area historically have been highly fire adapted and dependent on wildfire for their maintenance. The historic fire regime has been that of a low-severity regime, characterized as frequent (1-25 years) fires of low intensity (Agee 1990, p. 33). These frequent, low intensity fires maintained stands in open conditions with less understory shrubs and little dead and down woody fuel on the forest floor. The surface litter and small understory vegetation was consumed by the fires which kept the sites open and free of heavy fuel loading and ladder fuels. As a result, there were less chances of intense, stand-replacing fires occurring even during periods of severe fire conditions. This created stable and healthy forests which were very resilient to fluctuations in climatic and disturbance occurrences. Low-severity fire regimes were associated with the stability of these ecosystems. That is, they were more stable in the presence of fire than in its absence (Agee 1990, p.33).

Aggressive wildfire suppression, since the first decade of this century, coupled with increased human habitation and associated fire prevention have changed the natural fire regime. The removal of frequent, low intensity fire has changed the vegetative composition and the fuel profile across the analysis area. The forest community in the analysis area today is much denser, with multilayered canopy vegetation, and increased amounts of dead and down fuels. The increase in stand stocking levels creates fuel "ladders" which increases scorch height and canopy loss during wildfire. Denser stocking in today's stands increases competition for moisture. The current drought has escalated the moisture stress these stands experience and has accelerated the mortality of trees in these overstocked stands resulting in greater numbers of snags and larger amounts of coarse down woody debris. The increased number of snags can contribute to greater wildfire hazard by increasing the rate of fire spread through short-range spotting. The amount of coarse woody debris on a site influences potential fire behavior and fire effects. It contributes to the fire intensity, flame lengths, residence time of the flaming front, scorch height, and amounts of smoke produced. The amount of coarse woody debris is an important factor in whether a fire is a stand maintenance fire or a stand replacement fire.

Species composition changes have resulted from elimination of frequent fire. Shade tolerant and less fire resistant conifer and hardwood trees have become established in both the overstory and understory. Ponderosa pine and Oregon white oak have

decreased in numbers and extent due to competition from these species. Interruption of the natural fire cycles has allowed conifers to extend their range into lower elevation oak-woodland and grassland vegetative types where they area more susceptible to drought, insect attacks, and disease.

The current fire regime has shifted to a moderate to high-severity regime. Fire is infrequent, burns with greater intensity, and can often be a stand replacement fire. These fires can burn for long duration and are not easily extinguished relative to the former regime. The probability of stand replacement type of fire is much higher due to the fuel ladder created by the understory vegetation and woody debris buildup. The stability of the current vegetation is not as great as the former because of the lack of disturbance.

E. Wildlife, Including Threatened and Endangered Animals

A wide array of wildlife species occurs across the District landscape. The table in Appendix I lists special status species, their presence level, and management category. The text of Appendix J outlines habitat requirements.

The action alternatives' main effects relate to the snag and downed log component of the habitat. From a long-term (100 year) perspective, densities of wildlife trees across the landscape cycle up and down in a mosaic due to factors such as wildfire, insect infestation, disease, climate fluctuations, and human management activities. Local populations of individual wildlife species rise and fall as the habitat changes.

A discussion of wildlife trees, their benefits to wildlife, and management options is contained in Neitro et al., 1985, and Appendix 18 of that reference lists cavity-dependant species. The decision in the ROD (p. C 42) is to maintain snags at least at the 40 percent level (1.2 stems/acre of at least 16 inches diameter breast height (DBH)) over time on federal lands to meet the needs of cavity nesters. The Draft RMP/EIS (pp. 2-36) committed to maintaining snags at least at the 60 percent level (1.8 stems/acre), which is a feature common to all action alternatives in this EA (Alternatives 2 and 3). Unmanaged stands in southwestern Oregon sometimes exhibit wildlife tree densities in excess of the 100 percent level (3 stems/acre), based on calculations to provide for the size and decay class needs of 5 local woodpecker species. Many federal clearcuts are devoid of wildlife trees, as are intermingled non-federal acres. Additional snag management direction is provided in the ROD (C 46-47).

Due to fire history and human activities, density of downed woody material is variable across the landscape. Benefits to wildlife from logs of various decay classes on the forest floor are detailed in Bartels et al., 1985, and species using downed logs are listed in Appendix 20 of that reference.

FEDERALLY LISTED SPECIES

NORTHERN SPOTTED OWL

There are 95 known owl sites active in at least one year since 1985 within the provincial radius (1.2 miles Cascade, 1.3 miles Klamath) of the 90,000 acres of matrix lands being considered for salvage. Roughly 90 percent of the owl suitable habitat within the proposed salvage units has been surveyed for owl presence to interagency protocol standards.

MARBLED MURRELET

Approximately 20,000 acres of Matrix and AMA lands being considered for salvage are within the 35 to 50 mile band from the ocean. There have been no confirmed murrelet detections in southwestern Oregon further inland than 20 miles into the Rogue Basin on the Siskiyou National Forest, but very few proposed salvage areas have been surveyed.

BALD EAGLE

There is one known nest site within one mile of the area proposed for salvage, with potential for a second area along the Rogue River. No other sites would be affected.

PEREGRINE FALCON

There is one nest site within the proposed project area, but no salvage has been proposed within two miles.

SENSITIVE SPECIES

The ROD (pp. C 4-6, table C 3) mandates inventories to begin for Survey and Manage species such as great gray owl, red tree vole, Del Norte salamander, Siskiyou mountain salamander, and five species of forest dwelling bats (Fringed myotis, Silver-haired bat, Long eared bat, Long legged myotis, Pallid bat). The District has very little distribution information on these species, other than that they do occur locally. BLM policy is to protect any known or discovered sites for the species above.

Woodpeckers are primary cavity excavators, then secondary cavity nesters such as songbirds move in and reuse the cavities in subsequent years. Bat species use the cavities as well as roost under sloughing bark and in cracks in buckskin snags. While target levels of snag densities have been determined for primary cavity excavators in the ROD and Final RMP/EIS, there are no defined targets available for bats, neotropical birds, or raptors.

Several species of salmon and trout occur in streams throughout the proposed area. The ROD (p. C 30) details minimum riparian reserve widths, and helicopter yarding will be mandated throughout most of the area to minimize impacts to the fishery resource.

F. Soils

There is a wide range in soil characteristics within the analysis area due to the expansive amount of land considered under this proposal. The complexity of the geologic formations in southwest Oregon gives rise to a variety of soil textures, depth, rock content, mineralogy, and topographic features. In general, there are two geomorphic provinces within the area of analysis that have distinctive and contrasting soil characteristics. The Western Cascade province, typically, has soils formed in volcanic tuffs and breccias that have high shrink-swell clays. These soils are prone to slumping after disturbance. These soil types are found in the eastern portion of the project area. The Siskiyou province (also known as the Klamath province) which lies predominantly to the north and west of the Rogue Valley have soils formed in metamorphic and acidic igneous rocks. Surface textures are predominantly loams and sandy loams with high rock content, especially on steep side slopes. Granitic soils, derived from acidic igneous rocks, are susceptible to surface erosion due to low clay and organic matter content (RMP/EIS 1994, pp. 3-9). The dominant adverse impacts to soil productivity and increased erosion within the project area come from compaction, displacement, and removal of organic matter by timber sales, wildfires and, in some instances, prescribed fires. These impacts are primarily a result of road construction, timber harvest, and site preparation.

G. Ecosystem Processes

Ecosystems are assemblages and interactions of living and nonliving components of a habitat, including plants, animals, invertebrates, microorganisms, minerals, soil, water, and air. Ecosystem processes are the functions and linkages that shape and form the individual components and their complex interactions. For descriptive purposes, the affected environment for ecosystem processes can be grouped into four categories: geology and soils, aquatic and riparian, terrestrial, and atmospheric. All of these processes are linked to form the present conditions found in the ecosystems of the analysis area.

The forest ecosystems of the proposed project area are contained within parts of two major geological provinces: the northeastern portion of the Klamath Mountain Province and the southwestern portion of the Western Cascades Province (Irwin and

Hotz 1981). The majority of the project area falls within the Klamath Province, and its characteristics will be the focus of the discussion on ecosystem processes. The ecosystems of the Klamath Province are known for their diversity and complexity.

The Klamath Province is one of the oldest and most diverse geologically of any of the geologic provinces in Oregon (Palazzi, Powers, and McNabb 1992). The Klamath Province was generally spared from major glaciation and recent volcanic activity (Hansen 1955), and the ecosystem processes have developed over millions of years. This, combined with a highly variable Mediterranean climate, has resulted in forest ecosystems known for their variety, abundance, and distribution of species and processes through which they interact. This physical and botanical diversity combines with a long history of prehistoric and historic disturbances, primarily by fire, to produce highly variable forest communities (Franklin and Dyrness 1973). The ecosystems of the Klamath Province are considered to be the most floristically diverse of any in the western United States (Whittaker 1960).

Prior to white settlement in the early to mid 1800s, natural disturbances from fire, wind, flooding, insects, and disease were common. Additionally, Native Americans were known to have used fire to provide better habitat for some plants and animals. Gradual climatic changes over long periods of time has resulted in numerous species shifts (Atzet et al. 1992). These natural disturbance patterns resulted in very dynamic forest ecosystems that changed constantly over time. Disturbance has played a vital process role in providing for a diversity of vegetative types, structures, and for maintaining sustainable densities over time. Natural disturbances provided these effects while still preserving the necessary components of the important ecosystem processes.

The disturbance patterns changed significantly with the advent of white settlement in the mid 1800s. Mining, ranching, settlement, fire suppression, timber harvest, and road building replaced wildfire as primary disturbance agents. These actions were not evenly distributed across the landscape and were sometimes concentrated in certain areas. Human-caused disturbances have not always maintained all of the necessary ecosystem process components.

The natural ecological processes of the forests in the analysis area have seldom been constant and have changed frequently with the historic disturbance patterns. The presence of fire, insects, disease, periods of drought, and resultant tree mortality have always been components of these ecosystem processes but have occurred within a range of natural conditions. Maintaining vegetative diversity and densities that are sustainable over time are important to the stability of terrestrial and riparian ecosystem processes. When the density of the forests, species compositions, forest structure (a variety of tree sizes, presence of snags, and large down logs, etc.), populations of insects, presence of disease, incidence of catastrophic wildfire, and tree mortality occur outside the normal range, it is often an indicator that some

component of the ecosystem processes has been impacted. The shift from frequent, low-intensity wildfire to settlement-related disturbances and wildfire suppression have contributed to these impacts on the ecosystem processes.

Some timber harvests have simplified forest structures, altered the natural mix of seral and age class distributions, and impacted soil and riparian processes. Fire suppression has resulted in very dense riparian and upland vegetation in many areas. This has resulted in species compositions, accumulations of dead and down woody debris, insect and disease populations, and tree mortality levels that are outside the normal range of natural conditions. This has lead to less resilient forests at the landscape scale that are unable to resist insect and disease attacks, the effects of drought, and are becoming predisposed to catastrophic, high-intensity wildfire.

H. Economics

The Oregon Employment Department projects Jackson County's labor force to average 80,000 in 1994. Unemployment is projected to be 6,000 or about 7.5 percent. This is a decline of 0.9 percent in the unemployment rate from 1993 and is largely a result of job growth in the trade and service industries. Over the past five years, there has been a steady decline in employment in the lumber and wood products industries, the largest manufacturing sector in both Jackson and Josephine Counties. Since 1988, the lumber and wood products industry have declined from 6,000 jobs to a projected 4,800 jobs in 1994. (Oregon Employment Department 1994, pp. 2-4).

The labor force for Josephine County is projected to average 28,500 for 1994. The 1994 jobless rate is expected to be 10 percent or 2,850 people. Here again, any declines in the countywide jobless rate are a result of job increases in the trade and service industries and not in the manufacturing industries such as the lumber and wood products industries. The lumber and wood products industry employment in Josephine County fell by more than 33 percent over the last five years to just under 1,770 jobs in 1993. (Oregon Employment Department 1994, pp. 2-4).

The declines in the manufacturing employment associated with the lumber and wood products industries in both counties has been attributed to two primary reasons: reductions in timber supplies and technological changes in the industry. The average annual harvest from Medford District BLM lands from 1983 to 1988 was 237,507,000 board feet per year. This harvest level was estimated to contribute 1,280 jobs in the lumber and wood products industry and create $34.79 millon in direct personal income. Respending effects added 960 jobs and $14.35 million in local personal income in other sectors of the economy. No significant harvest volumes remain under contract as of 1994 (RMP/EIS, pp. 3-109).

Western Oregon Counties receive a 50 percent share of the total revenues generated by timber sales on O&C lands. Using a formula based on the amount of O&C lands

in each county, Jackson County received an annual average of $9.8 million and Josephine County received an annual average of $7.6 million during the period from 1984 to 1988. Federal (BLM & USFS) timber revenues were 26 percent of Jackson County's and 36 percent of Josephine County's total county expenditures for the 1990-1991 Fiscal Year (U.S. Bureau of Land Management 1994, pp. 3-115). Because of the drastic reductions in federal timber sales in the last few years, O&C timber funds transferred to the counties have virtually dried up. As a result, Congress has passed annual legislation to provide a "safety net" for Western Oregon counties. These revenue streams have been slightly less than receipts from timber sales in past years and will continue to decline over the ten-year life of the legislation.

IV. Environmental Consequences

A. Introduction

This chapter is organized by issue to describe the anticipated environmental impacts of the alternatives, including the Proposed Action, on the affected environment. It provides the basis for comparing the alternatives presented in Chapter II. The detail and depth of impact analysis is generally limited to that which is necessary to determine if significant environmental impacts are anticipated.

Several resources were considered by the ID team but were not analyzed in detail because they are either not found in the proposed project area or are not expected to be impacted under any of the alternatives (See Appendix A for more detail). Some of these resources are:

1) Wilderness values
2) Areas of Critical Environmental Concern
3) Air quality
4) Cultural resource values
5) Prime or unique farmlands
6) Wild and scenic rivers
7) Native American religious concerns
8) Solid or hazardous waste
9) Water quality
10) Wetlands and riparian reserves
11) Floodplains

Beyond the items under the Features Common to All Action Alternatives section of this EA (II.C.2.a.), there have been no additional mitigating measures identified to reduce the effects of the alternatives. The items in the Features Common to All Action Alternatives are considered to be a part of the description of the action alternatives and will be implemented if one of the action alternatives is selected for implementation.

B. Rural Interface

1. Alternative 1 - No Action

a. Direct and Indirect Effects

The No Action Alternative would cause no measurable direct effects on the two important issues -- noise and traffic safety -- identified for the RIA in this EA. There would be some indirect effects on other issues if this alternative were implemented. While not deemed a major issue

at this time, the continuation of the drought through 1994 is expected to continue the environmental stresses on the forests in the analysis area. These stress factors would cause more trees to die. These dead or dying trees have impacts on two areas of the human environment. First they would make up a larger percentage of the forest's canopy thus having negative effects on the viewshed of the residents in the RIAs. The increased numbers of dead and dying trees also would effect the overall feelings of well-being of the residents in the RIAs. In the Applegate Watershed, the harvesting of dead and dying trees was the most widespread forestry issue identified. "By and large, residents do not understand why agencies have not harvested more of the dead and dying trees. Contiguous property owners are particularly angered by what they feel is inaction or mismanagement on the part of the agencies" (Preister 1994, pp. 27).

b. Cumulative Effects

No cumulative effects were identified for the major issues listed for the RIA at this time. However, because it can take trees several years to die as a result of environmental stresses and insect attacks and because dead trees can remain standing for many years before falling to the forest floor, cumulative impacts would occur to the viewshed of the residents in the RIAs.

c. Relationship of Short-Term Uses and Long-Term Productivity

It is not believed that there would be any impacts to the long-term productivity of the forest or the viewshed if the No Action Alternative is selected.

d. Irreversible and Irretrievable Commitments of Resources

There would be no irreversible or irretrievable commitments of resources for the issues considered as major for the RIA.

2. Alternative 2 - Harvest Only Dead Trees

a. Direct and Indirect Effects

The implementation of the Harvest Only Dead Trees Alternative is expected to have impacts on the issues identified as major for the RIA. Harvesting operations would cause noise levels in the RIA to increase. The operation of helicopters, trucks, loaders, tractors, and chainsaws all would all contribute to the increased noise levels and could be expected to be heard most of the day. The greatest amount of noise would result

when a helicopter is operating within 500 feet. "Previous experience indicates that rural interface residents are most often affected in the early morning and late evening hours" (RMP/EIS pp. 4-115). Family relationships can become strained and domestic livestock and wildlife could be disturbed by both the noise and the increased human activity resulting from the logging operations (RMP/EIS. pp. 4-115).

While logging operations are active, there would be increased truck traffic on the roads within and around the areas being logged. There could be between 1,600 and 3,000 additional logging-truck round-trips under this alternative. Many of the roads in the region were designed to accommodate logging truck traffic. However, due to the immigration of people living in the RIA, there has been an overall increase in automobile traffic on the roads competing with the truck traffic. The result could be a higher rate of accidents involving vehicles owned by the residents and the logging trucks. There is also the potential of conflicts arising between school buses and logging trucks during the periods of active hauling.

b. Cumulative Effects

There are no anticipated cumulative impacts to major issues concerning the RIA that would result if this alternative were implemented. There would be the cumulative impact on the viewshed of the RIA as a result of removing some of the dead trees from the forest. The forest would be expected to look greener and therefore assumed by many to be healthier. There could also be an improvement in the overall feeling of well-being of the residents in the RIA because the BLM met their expectations of removing some of the dead trees from the landscape.

c. Relationship of Short-Term Uses and Long-Term Productivity

The short-term use of the RIA for harvesting some of the dead trees would not have any known effects on the long-term productivity or uses of the RIA relating to the major issues.

d. Irreversible and Irretrievable Commitments of Resources

Removal of some of the dead trees from RIA landscape would be irretrievable. The replacement of the number of dead trees in the landscape would be possible through several management practices such as girdling live trees to kill them. Thus it is felt that the effects of this alternative would not be considered irreversible.

3. Alternative 3 - Harvest Dead Trees and Trees Expected to be Dead in Two Years

The anticipated impacts of this alternative are expected to be the same as those described under the alternative to harvest only dead trees. The only differences would be increases in the length of time the logging operations would last in order to remove the additional volume. The noise levels would remain elevated longer, and the traffic competition would last longer as a result of getting out the additional logs. There could be between 4,000 and 6,000 additional logging-truck round-trips under this alternative as compared to the No Action Alternative. The impacts under this alternative could be up to twice the levels described under the alternative to harvest dead trees only.

C. Fire Hazard

1. Alternative 1 - No Action

a. Direct and Indirect Effects

This alternative would not remove any dead or dying trees. The short-term effect would be an increase in the number of standing dead snags present on the site as recent dead and currently dying trees deteriorate. Current hazard level would remain in the short term (3-5 years) and continue the trend toward increased hazard levels.

b. Cumulative Effects

Cumulative effects over the long term (6-20 years) would be a continued increase in the number of snags present as mortality continued in overstocked stands and an increased accumulation of down coarse woody debris. The hazard would continue to increase to levels above the current level. Wildfire would increasingly tend to be more stand-replacement fires with heavy mortality of understory and overstory vegetation and high consumption of woody debris and surface organic matter. Resistance to fire suppression control efforts would escalate due to the increased hazard, resulting in larger and more destructive fires.

c. Relationship of Short-Term Uses and Long-Term Productivity

Long-term productivity of the forest would remain unchanged. Current trend of increasing high hazard and potential for destructive effects of stand replacement wildfire would continue. This has the effect of creating a trend toward reduction in long-term productivity.

d. **Irreversible and Irretrievable Commitments of Resources**

There would be no irreversible and irretrievable commitment of resources as the potential to initiate actions to reduce hazard would not be foregone.

2. Alternative 2 - Harvest Only Dead Trees

a. **Direct and Indirect Effects**

This alternative would remove a portion of the fuel in the form of standing dead trees. Fire hazard would not expected to significantly change as a result of the harvest activity. It would be anticipated that neither the amount of trees harvested nor the amount of slash created would be of a large enough magnitude to significantly change the current hazard condition.

b. **Cumulative Effects**

Cumulative effects over the long term (6-20 years) described for this alternative would be the same as the No Action Alternative, e.g., trend toward increasingly high fire hazard and the destructive effects of wildfire would not be altered by this alternative.

c. **Relationship of Short-Term Uses and Long-Term Productivity**

Long-term productivity of the forest would remain unchanged. Current trends of increasing high hazard and potential for destructive effects of stand replacement wildfire would continue. This would have the effect of creating a trend toward reduction in long-term productivity.

d. **Irreversible and Irretrievable Commitments of Resources**

This alternative would not significantly reduce fuel enough to result in a change in the fire hazard. The trend of increasing numbers of standing snags and amounts of down coarse woody debris would continue. There would be no irreversible and irretrievable commitment of resources. The potential to initiate actions to reduce hazard would not be foregone.

3. Alternative 3 - Harvest Dead Trees and Trees Expected to be Dead in Two Years

a. **Direct and Indirect Effects**

This alternative would harvest dead trees and trees expected to die within

two years. This would remove a greater portion of material than Alternative 2 - Harvest Dead Trees Only, but would not be expected to be a substantial increase. This alternative may slightly decrease the short-term hazard by the removal of a larger portion of standing fuel and future source of snag and down woody materials. This effect on hazard reduction, if created, would be localized and of short duration.

b. Cumulative Effects

Cumulative effects of this alternative over the long term (6-20 years) would be the same as those described for Alternatives 1 and 2. It is anticipated that the amount of trees harvested would not be of a large enough magnitude to significantly alter the long-term fuel hazard trend toward increasingly higher fire hazard and resulting destructive effects from wildfire.

c. Relationship of Short-Term Uses and Long-Term Productivity

Long-term productivity of the forest would remain unchanged. Current trend of increasing high hazard and potential for destructive effects of stand replacement wildfire would continue. This would have the effect of creating a trend toward reduction in long-term productivity.

d. Irreversible and Irretrievable Commitments of Resources

This alternative would not significantly reduce fuel enough to result in a change in the fire hazard over the long-term. The trend of increasing numbers of standing snags and amounts of down coarse woody debris would continue. There would be no irreversible and irretrievable commitment of resources. The potential to initiate actions to reduce hazard would not be foregone.

D. Wildlife, Including Threatened and Endangered Animals

1. Alternative 1 - No Action

a. Direct and Indirect Effects

With no salvaging of dead and dying trees at this time, populations of cavity dependant species would remain the same or increase on federal lands. The supply of downed logs would increase in the next decade as snags rotted and fell over. An indirect effect would be slightly increased probability of higher intensity wildfire due to increased fuel which could lead to a loss of habitat for some species. Spotted owl nesting, foraging, and dispersal habitat would not be degraded. The increasing snag

component would promote owl prey species.

b. **Cumulative Effects**

As the snag resource is reduced on intermingled non-federal lands, wildlife trees on federal lands would become more important to the wildlife in the watershed, especially near property lines. While fuel loading would slowly increase in the next decade, the potential for a wildfire would remain basically the same.

c. **Relationship of Short-term Uses and Long-term Productivity**

There is no data available to say that short-term use would effect long-term production of the area for wildlife habitat.

d. **Irreversible and Irretrievable Commitments of Resources**

There would be no irreversible or irretrievable commitments of resources for the wildlife issue.

2. Alternative 2 - Harvest Only Dead Trees

a. **Direct and Indirect Effects**

WILDLIFE TREES

The main impact would be the reduction of the snag resource on up to 25,000 acres of matrix lands to the 60 percent level of potential cavity nester habitat. Since many of these acres currently do not have sufficient wildlife trees, those units would not be entered. There would also be short-term helicopter noise disturbance to cavity users.

Appendix I lists various classes of Sensitive Species thought to occur on the Medford District and whether impacts of the sale are high, medium, low, or unknown in the opinion of the resource area biologists. In some cases, impacts to one species may be high in the short term within one unit, but due to the scattered nature of the proposed salvage, and the many acres not being entered, impacts are low when considered across the federal landscape.

Many species of woodpeckers, songbirds, and small mammals use the snag resource. Some of these species may have undergone a population increase in the past five years due to the increase in snags or to the increase in insects favored by drought stress. There is no baseline population density information. The effect on these animal species of

sudden reduction in some areas from 6-10 snags per acre down to 2-3 is unknown. There is no baseline information available on target snag densities needed to maintain populations of forest bats. Most species of resident birds have a defended territory during the nesting season and can only pack into an area to a certain density even if wildlife trees are abundant. Leaving snags in excess of those necessary to meet 100 percent of the population levels would not increase cavity user populations.

The snag sampling transects established for sale monitoring show many units where dead trees exceed the 60 percent minimum density, but excess merchantable stems are so scattered that it would not be economical to proceed with harvest. Where the unit is deficient in downed woody material, additional standing snags would be reserved to provide future recruitment as downed logs. Additional dead trees would be left during marking to compensate for predicted losses to windthrow and OSHA safety conflicts.

Coarse woody debris standards are discussed in Appendix H. Many previously unmanaged stands are deficient (ROD p. C 40) in large (greater than 16-inch diameter) downed woody material due to slow tree-growing conditions and fire history. Bureau of Land Management Oregon State Office Instruction Memorandum No. OR-95-028 (see Appendix K) provided guidance on how to proceed with establishing coarse wood debris standards for situations not clearly defined in the ROD. The instruction memorandum says in cases like the proposed salvage project it is the District's responsibility to develop target levels, and there is no mandate to fell standing trees to compensate for shortages of downed logs.

NORTHERN SPOTTED OWL

Ninety-five known owl centers of activity are within the provincial radius (1.2 miles for the Cascade Province, 1.3 miles for the Klamath Province) of proposed salvage units in the Matrix and AMA lands. No salvage would occur within the 100 acre core area (one-quarter mile) of an owl site, and a seasonal restriction from March 1 through May 15 to minimize helicopter noise disturbance would be imposed within a one-half-mile radius unless there were a significant terrain break to block the noise.

On a specific owl site basis, the proposed action would be a "No Affect" in terms of the Endangered Species Act (ESA). But when so many owl sites are involved across a landscape, the potential additive effect would become a "May Affect - Not Likely to Adversely Affect" determination,

and the U.S. Fish and Wildlife Service (USFWS) would be consulted. There would be no salvage within the large late successional reserve (LSR) clusters and none within the 100 acre cores, and dispersal habitat would not be degraded. No specific recommended snag densities have been developed for spotted owls and their prey base.

MARBLED MURRELET

Snags are not considered to be a requirement for murrelet habitat, which is characterized by large trees, dense canopy closure, clumpiness, and deformed limbs. Canopy closure would not be affected by the removal of dead trees. Helicopter noise would be the main impact. Surveys for murrelet presence on the Medford District are very spotty, with no detections. Surveys on the adjacent Siskiyou National Forest have had no confirmed detections further inland than 20 miles from the ocean in the Rogue Basin.

No acres are proposed for salvage within the 35-mile band from the coast that has the highest likelihood of murrelet occurrence. Approximately 20,000 acres are proposed for salvage within the 35- to 50-mile band from the coast (closest proposed salvage is 40 miles). None of the proposed project area is designated as critical habitat. Probability of occurrence is very low, but there have been few surveys. The project is determined to be "may affect, not likely to adversely affect," and USFWS would be consulted in compliance with the ESA. If any Murrelets are discovered in the project area, sale activities within 1/2 mile of the detection would be halted from April 1 through September 15.

BALD EAGLE

Snags for perching are an important component of bald eagle habitat, but the retention of the minimum 60 percent level of wildlife trees would provide adequate perching opportunities for eagles. No salvage would occur within one-quarter mile of the one known or any newly discovered nests, and a seasonal restriction of February 1 through August 15 would be imposed within one mile of known nests to minimize noise disturbance (final RMP, pp. 2-30). Most eagle activity is along major watercourses, where no salvage will be occurring in the riparian reserves. With the listed elements in the Features Common to All Action Alternatives section, this alternative would be a "No Affect."

PEREGRINE FALCON

Maintenance of snags at the 60 percent level would provide adequate perching habitat for peregrines plus adequate cavity habitat for their prey across the landscape. No salvage would occur within two miles of the one known eyrie. A seasonal restriction of January 1 through July 15 (final RMP, pp. 2-30) would be imposed on any helicopter operations within one and one-half miles of any new sites to minimize noise disturbance. This alternative would be a "No Affect."

FISHERIES

Impacts to the fisheries resource would be low. No ground-disturbing activities within the 140-300-foot-wide riparian reserves would occur, other than maintenance blading of a few road corridors to landings. Supply of coarse woody material or shade to streams will not be altered. Helicopter yarding would minimize soil disturbance, thus siltation, as a few snags per acre would be lifted out.

b. Cumulative Effects

The density of wildlife trees has already been drastically reduced on most non-federal land through past harvest and ongoing sanitation salvage. While recommendations for how to achieve the 60 percent cavity nester population has been outlined (Neitro et al. 1985), no target levels for forest dwelling bats (5 species given candidate status in November 1994) have been established.

Cumulative effects of snag reduction on up to 25,000 federal acres currently being considered should be low for most species as long as the 60 percent level (1.8 snags per acre) is maintained. Since no stage 2 or 3 snags would be taken, plus with rapid deterioration of merchantability in stage 1 snags (thus many would not be cut), plus recruitment of replacement snags as the drought stress/bug kill continues, localized snag density is projected to return to the 100 percent level (3 per acre) within two years following the salvage. This recruitment would probably occur more rapidly in low elevation areas. The ROD (p. C 46) recommends leaving an additional 0.12 snags/acre for black backed woodpeckers or 0.60 snags/acre for white headed woodpeckers where they are known to occur. There is little survey information on these species' occurrence. General sale marking guidelines would in many areas be leaving snags at the 100 percent level since there are abundant stage 2 or 3 snags and nonmerchantable stage 1 stems.

c. Relationship of Short-term Uses and Long-Term Productivity

The ROD (pp. C 13-16) discusses habitat benefits of snags as well as when salvage could occur. From a continuous resupply of dying trees, the current proposal would remove some stage 1 snags on some of the federal portion of the landscape. Within a five-year time frame, the supply of stage 1 snags could be drastically reduced. A dead tree is only in the stage 1 class for one or two years. Stage 2 and 3 snags would still provide habitat needs for cavity nesters. Recruitment of more snags would occur within two years of the sale to buffer the short-term gap in stage 1 snags. In many areas, the 100 percent level would be maintained via the ongoing recruitment of snags. The amount of downed woody material would be accelerated in the short term from leaving unmerchantable logs and tops of the harvested stage 1 snags.

d. Irreversible and Irretrievable Commitments of Resources

Some active cavity nests could be felled during the sale, although a higher number of nests are found in stage 2 and 3 snags. This could lead to a reduction of cavity nester populations.

3. Alternative 3 - Harvest Dead Trees and Trees Expected to be Dead in Two Years

a. Direct and Indirect Effects

The effects of this alternative are essentially the same as Alternative 2 - Harvest Dead Trees Only, except that insect infested trees expected to die within two years would be harvested on up to 35,000 acres. Harvest volume would be higher, and helicopter noise disturbance would be of longer duration. With more potential volume available, more economically marginal units could be entered. The 60 percent snag density would still be maintained, and, in many units, the 100 percent snag level would be maintained due to a high number of stage 2 and 3 snags and unmerchantable stage 1 snags.

b. Cumulative Effects

By taking more trees about to become stage 1 snags, recruitment of replacement snags would be slowed by two years. The impact of snag removal would still be magnified by the lack of wildlife trees on intermingled private lands. The monitoring plan (Appendix C) would track actual levels of snag retention prior to, during, and following the sale. The monitoring plan would not provide validation of actual use of the snags and downed logs by wildlife species.

c. **Relationship of Short-Term Uses and Long-Term Productivity**

Removal of the trees expected to be dead in two years would result in a longer interruption in the continuum of the snag supply of various decay classes, shifting recovery to the 100 percent level in some units from a 1-2 year horizon to a 3-4 year horizon. Duration of noise disturbance would last up to several days per unit, and perhaps a week at a landing site.

d. **Irreversible and Irretrievable Commitments of Resources**

Some active cavity nests could be felled during the sale in stage 1 snags, although a higher number of nests would be found in stage 2 and 3 (softer) snags. This could lead to a reduction of cavity nesters populations. Additional noncavity nests could be lost in felling the infested trees about to die.

E. Soil

1. Alternative 1 - No Action

a. **Direct and Indirect Effects**

Direct and indirect effects of the No Action Alternative would allow more trees to be available as future sources of down woody materials than the action alternatives. It is expected that the majority of these trees would eventually end up on the ground and be available for soil nutrient recycling. There is no current data that can be used to quantify these direct and indirect effects.

b. **Cumulative Effects**

It is anticipated that there would be no additive adverse impacts to the existing condition of the soil resources from the implementation of the No Action Alternative. However, there would be small incremental increases of potential soil nutrients through the recycling of down large woody materials across the landscape over the long term (10 years +).

c. **Relationship of Short-Term Uses and Long-Term productivity.**

There would be no measurable adverse impacts to long-term soil productivity from the implementation of the No Action Alternative. The No Action Alternative would be expected to have a higher potential to improve long-term soil productivity than the action alternatives. The magnitude of these effects are unquantifiable due to a lack of current data.

d. Irreversible or Irretrievable Commitments of Resources

There would be no measurable irreversible or irretrievable impacts to the soil resource from the implementation of the No Action Alternative.

2. Alternative 2 - Harvest Only Dead Trees

a. Direct and Indirect Effects

Anticipated impacts to the soil resource would come from compaction and displacement as a result of construction of helicopter landings, spur roads, and ground-based yarding from existing roads. It is expected that soil erosion and subsequent sedimentation would be confined to very small areas with the implementation of the features common to all action alternatives. Also, the use of helicopters as the dominant method of harvesting salvage trees would create less soil disturbance and less need for use of haul roads than conventional methods. This is expected to keep direct and indirect impacts on the soil resources at minimal levels. Losses of soil productivity resulting from reduced amounts of coarse woody debris is expected to be minimal.

b. Cumulative Effects

Cumulative impacts on the soil resource is expected to be minimal. Landing construction, spur road construction, and yarding operations would be widely distributed around the project area which would add only small incremental increases to cumulative impacts on the soil resources in individual watersheds. Also, watersheds that have already been identified as having high cumulative impacts will not be considered for harvest under this proposal (RMP/EIS pp. 2-25).

c. Relationship of Short-Term Uses and Long-Term Productivity

Areas compacted from construction of roads and landings would have adverse impacts to long term soil productivity relative to plant growth potential. Most of these areas would be considered part of the permanent transportation system for future access needs. There would also be a slight decrease in overall long-term soil productivity from the removal of future down woody materials.

d. Irreversible and Irretrievable Commitments of Resources

To a minor extent, some areas that would have soil compacted or displaced from road and landing construction may suffer irreversible and/or irretrievable loss of soil productivity. Returning these areas to

natural conditions relative to potential plant growth would be improbable.

3. Alternative 3 - Harvest Dead Trees and Trees Expected to be Dead in Two Years

The effects on soil resources from the implementation of this alternative would be the same as those described under Alternative 2, except they are expected to have twice the frequency. However, the magnitude of the impacts are expected to remain at minimal levels.

F. Ecosystem Processes

1. Alternative 1 - No Action

a. Direct and Indirect Effects

The No Action Alternative would cause no measurable direct effects on ecosystem processes. The forest health related issues impacting terrestrial ecosystem processes are primarily the result of over dense vegetative conditions combined with an extended drought period. Removing the dead and dying trees would not alleviate the over dense conditions in the forests nor would leaving the dead and dying trees through no action increase the severity of the overstocked conditions. Some indirect effects to soil and riparian processes over the long term could be realized from no action as this would allow snag and coarse woody debris levels to accumulate which would provide more organic matter to soils and more structure to stream and riparian areas. However, this effect could be more than offset by the increased wildfire risk brought on by accumulations of fuel levels that are already outside of the normal range of natural conditions in unharvested areas. Wildfires would also more likely be high intensity, stand replacement fires that would impact soil and riparian processes by consuming most of the woody debris and organic matter found on the forest floor. Atmospheric processes could also be impacted by increased wildfire risk through large inputs of smoke into the system.

b. Cumulative Effects

Some of the previously harvested lands within the analysis area have had the snag and coarse woody debris component reduced through the harvest activity. The No Action Alternative could cumulatively benefit terrestrial species that utilize snags and coarse woody debris during their life cycle. Another cumulative effect from no action would be a buildup of fuels at the landscape scale which could increase the risk of

catastrophic wildfire.

c. Relationship to Short-Term Uses and Long-Term Productivity

If wildfire were kept out of the ecosystem, long-term productivity could be enhanced through the No Action Alternative by increasing the amount of large, coarse woody debris in the ecosystem. Woody debris is an important component to soil ecosystem processes. As woody debris decomposes, organic matter builds on the forest floor and soil microorganisms are able to convert the decomposed wood and organic matter to nutrients available to plants and animals. If intense wildfire is not kept out of the ecosystem, these long-term productivity benefits would not likely be realized.

d. Irreversible and Irretrievable Commitments of Resources

There would be no irreversible or irretrievable commitments of resources for ecosystem processes under the No Action Alternative.

2. Alternative 2 - Harvest Only Dead Trees

a. Direct and Indirect Effects

The areas being analyzed for harvest under this project are generally sites that have not been harvested or have been lightly harvested in the past and have the highest frequency for natural disturbance for southwestern Oregon. Natural fire return intervals for Interior Valley Zone Forests are documented to be as frequent as 10-15 years (Agee 1990). These frequent disturbance regimes have resulted in forest conditions that have been dynamic and highly variable over time. There never have been constant and stable levels of snags and coarse woody debris on these areas. The historic levels of dead and down trees in these ecosystems are primarily a function of the plant community, elevation, aspect, and period of time since the last disturbance. The present rate of mortality and associated woody debris buildup on the forest floor is considered to be higher than the range of historic natural conditions. Ongoing mortality will continue to add dead trees to the ecosystem after the harvest of dead trees as proposed under this alternative.

The standards and guidelines for the ROD set minimum levels of snags to be left on harvested sites so that this necessary component of certain ecosystem processes would be maintained. The retained levels of Stage I snags planned under this alternative exceeds the minimum levels required under the ROD.

For these reasons, it is not anticipated that there would be any measurable direct or indirect effects to ecosystem processes from the Harvest Only Dead Trees Alternative.

No harvest under the action alternatives would take place within the riparian reserves. Therefore, no impacts to aquatic and riparian ecosystem processes are expected.

b. Cumulative Effects

Some of the previously harvested lands within the analysis area have had the snag and down woody debris component reduced through timber harvest activity. Where timber harvest has reduced snag and coarse woody debris levels below the range of natural conditions at the landscape level, further removal of dead trees under this alternative would reduce the habitat for terrestrial species that utilize snags and coarse woody debris during their life cycle.

c. Relationship of Short-Term Uses and Long-Term Productivity

Since current tree mortality rates and woody debris accumulations on the sites being analyzed for harvest are above the normal range of natural conditions and the minimum levels of snags proposed to be retained on the sites after harvest exceeds the levels required in the ROD (pp. C 41-43), it is not anticipated that short-term uses from this alternative would affect long-term productivity for ecosystem processes.

d. Irreversible and Irretrievable Commitments of Resources

Removal of some of the dead trees from these ecosystems would be irretrievable for those particular trees. Continued mortality of trees will replace the dead trees harvested until the overdense conditions of these forests is alleviated and the drought conditions of the past decade ease. Therefore, the effects of this alternative are not considered irreversible.

3. Alternative 3 - Harvest Dead Trees and Trees Expected to be Dead in Two Years

The anticipated impacts of this alternative are expected to be the same as those described under the Alternative to Harvest Only Dead Trees described above. The only difference would be the possibility that the cumulative impacts could be greater in areas where previous harvest activities have reduced the level of snags and coarse woody debris below the range of natural conditions. This would be a further impact to terrestrial species who utilize this material during their life cycle.

G. Economics

The following impact analysis is developed from information contained in the socioeconomic sections contained in the Draft - Medford District Resource Management Plan and Environmental Impact Statement (U.S. Bureau of Land Management 1992, DRMP/DEIS. pp. 2-53 and 4-116). The range of possible stumpage values was derived by applying professional judgement and current timber values to stumpage receipts received for similar resources in the past. Using the information contained in the draft RMP/EIS and professional input, the following values were used to develop the economic impact analysis for this EA:

Total employment (jobs) resulting from timber harvest equals 9.33 jobs per million board feet of timber.

Total personal income (1989 dollars) resulting from timber harvest equals $204,584 per million board feet.

Stumpage values could range from $102 to $403 per thousand board feet.

Because the wood quality of the trees identified for harvest will decline rapidly in value due to deterioration, it is expected that the timber would be quickly harvested after contract award. As a result, all harvesting would occur before the expiration of the legislation that provides a "safety net" to counties in Western Oregon which received O&C timber revenues. The safety net is a guaranteed amount of federal dollars to compensate for lost income to the counties because of reduced timber sale volumes from O&C lands. Thus, it is felt there will be no direct impacts to the counties' revenues resulting from the implementation of any of the alternatives.

1. Alternative 1 - No Action

a. Direct and Indirect Effects

The No Action Alternative would have direct economic impacts in two areas. First, there would be potential income foregone to the U.S. Treasury of somewhere between $816,000 and $12,090,000, depending on which action alternative was selected, the final timber volume sold, and the stumpage price. Second, there would be a lost opportunity to create between 75 and 280 jobs, with values of $1,637,000 and $6,138,000 respectively, in Jackson and Josephine counties.

Indirect economic impacts could occur to adjacent private lands as a result of increasing amounts of dead and dying trees in the viewshed. It is speculated that large numbers of dead and dying trees in the forests on both public and private lands can lead to reductions in property values due to less scenic views and perceptions of increased fire danger. Data

to quantify these impacts are not available.

b. Cumulative Effects

No cumulative effects for the No Action Alternative are quantifiable from the data available.

c. Relationship of Short-Term Uses and Long-Term Productivity

The selection of No Action Alternative would forgo the use of the dead and dying trees for wood products and to create jobs to support the local and regional economies. In essence, this would result in a long-term loss of this income to the economies.

d. Irreversible and Irretrievable Commitments of Resources

The implementation of the No Action Alternative is an irreversible and irretrievable commitment of economic resources. The merchantable quality of the dead and dying trees would continue to rapidly deteriorate, and any economic opportunities relative to these specific trees would be expected to be lost forever.

2. Alternative 2 - Harvest Only Dead Trees

a. Direct and Indirect Effects

The implementation of the alternative to harvest only dead trees would potentially provide between $816,000 and $6,045,000 to the U.S. Treasury depending on the volumes actually sold and the stumpage value. There would be between 75 and 140 jobs created, with values of $1,637,000 and $3,069,000 respectively, created in Jackson and Josephine counties.

b. Cumulative Effects

The jobs and dollar values contributed to the local and regional economies would help support state and local governments and public services through state and local taxes. There is also the cumulative effect of creating additional jobs and economic value in support and service industries needed to facilitate the logging operations.

c. Relationship of Short-Term Uses and Long-Term Productivity

The use of the excess dead trees in the short term for wood products needed for human use could contribute to the long-term economic

productivity of the region. The economies of Jackson and Josephine counties are undergoing a shift from being dominated by resource-based industries, such as timber harvesting, to more service and information-based industries. The jobs and incomes that would result from harvesting these trees could help support and stabilize the local and regional economies during portions of the transition periods. This could lead to a stronger and more stable economy over the long term.

d. Irreversible and Irretrievable Commitments of Resources

The harvesting of the dead trees is a irreversible and irretrievable commitment of resources. Once the trees are harvested they cannot serve other uses such as wildlife habitat. However, failure to salvage the dead trees is also an irreversible and irretrievable commitment of resources. The merchantable quality of dying trees will continue to deteriorate and the opportunity to use them to meet human needs and support the local and regional economies will soon be lost forever.

3. Alternative 3 - Harvest Dead Trees and Trees Expected to be Dead in Two Years

a. Direct and Indirect Effects

The implementation of the alternative to harvest dead trees and trees expected to be dead in two years would potentially provide between $2,040,000 and $12,090,000 to the U.S. Treasury depending on the volumes actually sold and the stumpage value. There would be between 187 and 280 jobs created, with values of $4,092,000 and $6,138,000 respectively, created in Jackson and Josephine counties.

b. Cumulative Effects

See statements under Cumulative Effects of the Harvest Only Dead Trees Alternative (IV.G.2.b) above.

c. Relationship of Short-Term Uses and Long-Term Productivity

Under this alternative, the merchantable quality of the dying trees would not be lost. Also see statements under Relationship of Short-Term Uses and Long-Term Productivity of the Harvest Only Dead Trees Alternative (IV.G.2.c) above.

d. Irreversible and Irretrievable Commitments of Resources

See statements under Irreversible and Irretrievable Commitments of

Resources of the Harvest Only Dead Trees Alternative (IV.G.2.d) above.

Table 3-1: Comparison of economic impacts by alternative.

	Alternative 1- No Action	Alternative 2- Dead Trees Only	Alternative 3- Dead and Dying Trees
Stumpage values	0	$816,000 to $6,045,000	$2,040,000 to $12,090,000
Total jobs created	0	75 to 140	187 to 280
Total value of jobs created	0	$1,637,000 to $3,069,000	$4,092,000 to $6,138,000

V. Persons or Agencies Consulted

Rogue River National Forest, United States Forest Service
Siskiyou National Forest, United States Forest Service
Research and Monitoring Committee of the Regional Ecosystem Office
Oregon State Historical Preservation Officer
Endangered Species Consultation Section, United States Fish and Wildlife Service
Oregon State Historic Preservation Officer
Gordon Bettles, Cultural Resource Coordinator, Klamath Tribe
Mike Mason, Tribal Attorney, Confederated Tribes of the Grande Ronde
Sue Shaffer, Tribal Chairwoman, Cow Creek Band of the Umpqua Indians
Robert Kentta, Cultural Resources Coordinator, Confederated Tribes of the Siletz Headwaters
Public Forestry Foundation
Aerial Forest Management Foundation

VI. List of Preparers

Name	Responsibilities/Positions	Qualifications
Core Team		
Steve Armitage	District Operations Coordinator - Logging Systems Technology and Contract Administration	B.S., Forest Management, University of Michigan; USFS, 2 years; BLM, 21 years
Charlie Boyer	District Environmental Coordinator - Rural Interface, and Economics	B.S., Forestry (Range Management), University of Idaho; USDA-ARS, 1 year; BLM, 21 years
Teresa Coffey	Hydrologic Technician - Soils, Hydrology, and Watershed	B.S., Geology, Southern Oregon State College; BLM, 3 years
Jim Harper	Wildlife Biologist - Wildlife, Fisheries and T&E Wildlife	M.S., Zoology; Western Illinois University; BLM, 16 years (Certified Wildlife Biologist)
Tom Murphy	Fuels Management Specialist - Landscape, Fire, and Air	B.S., Natural Resource Management; Rutgers University; USFS, 1 year; BLM, 15 years
John Prendergast	Silviculturist - Silviculture	B.S., Forest Management, West Virginia University; Georgia-Pacific Corp, 1 year; USFS, 3 years (Certified USFS Silviculturist); BLM, 13 years
Ken Van Etten	Soil Scientist - Soils, Hydrology and Watershed	B.S., Soil Science, Cal Poly; BLM, 16 years
Jean Williams	Environmental Coordinator-Recreation, T&E Plants	B.S., Environmental Interpretation and Education, Oregon State University; USFS, 12 years, BLM, 3 years
Bill Yocum	Forester - Transportation, property lines, cultural resources	B.S., General Studies (Geography), Southern Oregon State College; Forestry Equivalent, Oregon State University; BLM, 19 years
Extended Team		
Kurt Austermann	District Public Affairs Officer	B.S., Journalism, Boston University; Radio/Television News Director, Newspaper Correspondent, 10 years; USFS, 11 years; BLM, 11 years
Sara Buchheim	Procurement Assistant - Editorial and Word Processing Assistance	A.A. Accounting, Red Rocks College, Denver; BOR 5 years; ARS 3 years; VA 3 years; BLM 4 years
Teresa Gallagher-Hill	Realty and Access Specialist - Access	Business Administration, Southern Oregon State College; BLM, 19 years
Dale Johnson	District Fisheries Biologist - Fisheries	B.S., Fisheries Science, Oregon State University; Beak Environmental Consulting, 3 years; EPA, 1 year; Bonneville Power Administration, 10 years; BLM, 6 years
Laurie Lindell	District Hydrologist - Hydrology and Watershed	M.S., Water Resources, Colorado State University; Research, 1 year; BLM, 14 years
Robert Marlow	District Inventory Specialist - Inventory Data	B.S., Forest Management, Southern Illinois University; BLM, 23 years
Rick Prusz	GIS and Mapping Specialist - Maps	B.S., Forest Management, University of Illinois; M.S. Forest Resources, University of Illinois; BLM, 20 years
Joan Seevers	District Botanist - T&E Plants	B.S., General Studies-Science/Math, Southern Oregon State College; BLM, 16 years
Kate Winthrop	District Archaeologist - Cultural Resources and Native American Issues	Ph.D., Anthropology, University of Oregon; Winthrop Associates 10 years; BLM, 2 years

GLOSSARY

CABLE YARDING SYSTEM - Any log yarding system that operates from a fixed location and pulls logs to an existing system road. Systems vary from using log skidders with winching ability to skyline yarders.

CALIFORNIA BEARING RATIO (CBR) - A comparative measure of the shearing resistance of a soil. It measures the load required to cause a plunger of standard size to penetrate a soil specimen at a specified rate.

COMMERCIAL FOREST LAND - All forest land that is capable of yielding at least 20 cubic feet of wood per acte per year of commercial trees species (TPCC catagories: NP, F_R, R_R).

CRITICAL HABITAT - Under the Endangered Species Act of 1973, (1) the specific areas within the geographic area occupied by federally listed species on which are found physical and biological features essential to the conservation of the species and that may require special management considerations or protection; and (2) specific areas outside the geographic area occupied by a listed species when it is determined that such areas are essential for the conservation of the species.

CRUCIAL HABITAT - Habitat that is basic to maintaining viable populations of fish or wildlife during certain seasons of the year or specific reproduction periods (such as important deer winter range).

DIAMETER AT BREAST HEIGHT (DBH) - Diameter of a tree trunk measured at four and one-half feet above the ground on the uphill side of the tree.

FIRE RISK - The chance of potential ignition sources causing a fire, threatening valuable resources, property, and life.

FIRE INTERVAL (fire-free interval or fire-return interval) - The number of years between two successive fire events in a given area.

FUEL HAZARD - A fuel complex defined by kind, arrangement, volume, condition, and location that forms a special threat of ignition, spread, and difficulty of suppression.

FUEL LADDERS - A vertical continuity in fuel between the ground and crown of a forest stand.

INTERMITTENT STREAMS - Streams that carry water most of the year but cease to flow during the dry season because evaporation and percolation into their stream bed and banks exceed available stream flow. They have well defined channels. Channels showing active scouring or washing are included in this category even though they may flow only during or immediately after periods of precipitation or the melting of snow. Intermittent streams

normally lack vegetative litter except during the fall of the year.

LATE-SUCCESSIONAL RESERVE (LSR) - A forest in its mature and/or old-growth stages that has been reserved under each option of the Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl.

PROVINCIAL RADIUS - Area of consideration for spotted owl impact analysis, from a nest area out to 1.2 miles in the Cascade Province (east third of the district), and 1.3 miles for the Klamath Province (west two-thirds), divided roughly by Trail Creek to the north and I-5 to the south.

REGIONAL ECOSYSTEM OFFICE (REO) - The office established to provide a focal point for scientific and technical expertise in support of implementation of the forest management plan. It will also be responsible for evaluation of major modifications arising from the adaptive management process and will coordinate the formulation and implementation of the data standards.

RIPARIAN RESERVES - Riparian reserves are portions of the watershed required for maintaining hydrologic, geomorphic, and ecological processes that directly affect standing water bodies such as lakes and ponds, wetlands, streams, and fish habitat. They are the portions of watersheds where riparian-dependent resources receive primary emphasis and where special standards and guidelines apply.

SUITABLE WOODLAND COMMERCIAL FOREST LAND - A forest land class that is occupied with commercial species not considered sustainable for long-term timber production and is not considered in the Probable Sale Quantity (PSQ). (TPCC catagories: RLW, RPW, RTW, RSW, RMW, RFW)

SYSTEM ROADS - System roads are both private and BLM roads that have been historically used as log hauling roads. They are typically numbered and are a part of the BLM road inventory system.

THOUSAND BOARD FEET (MBF) - a measurement of log volume. One board foot equals a piece of wood 1 foot long by 1 foot wide by 1 inch thick.

TIMBER PRODUCTION CAPABILITY CLASSIFICATION (TPCC) - The process of partitioning forest land into major classes indicating relative suitability to produce timber on a sustained yield basis.

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U.S.D.I., Bureau of Land Management, Medford District; U.S.D.A., Forest Service, Rogue River National Forest; U.S.D.A., Forest Service, Siskiyou National Forest; U.S.D.A. Forest Service, PNW Research Station. 1994. Applegate Adaptive Management Area Ecosystem Health. Prepared by the Bureau of Land Management and the Forest Service, Medford and Grants Pass, Oregon.

U.S. Forest Service and Bureau of Land Management. 1994. FSEIS. Final supplemental environmental impact statement on management of habitat for late-successional and old-growth forest related species within the range of the northern spotted owl, Volumes 1 and 2. Prepared by the Forest Service and the Bureau of Land Management, Portland, Oregon.

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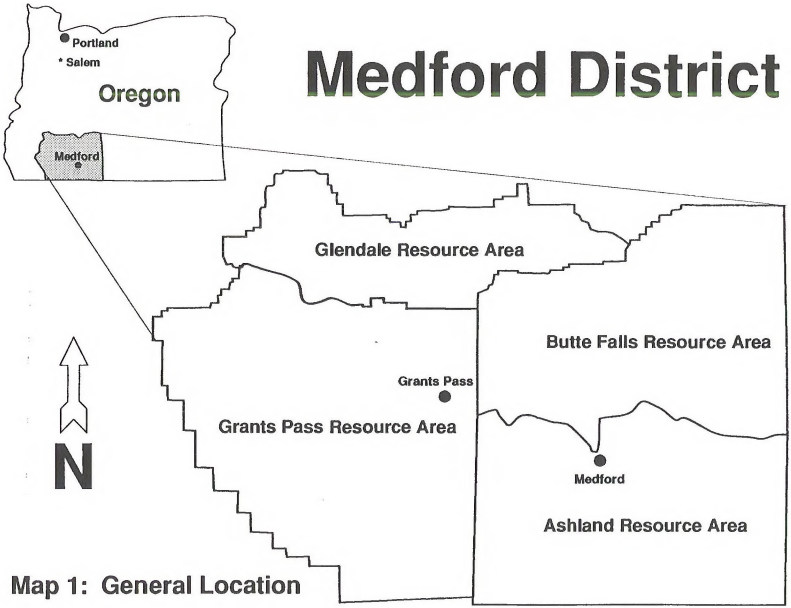
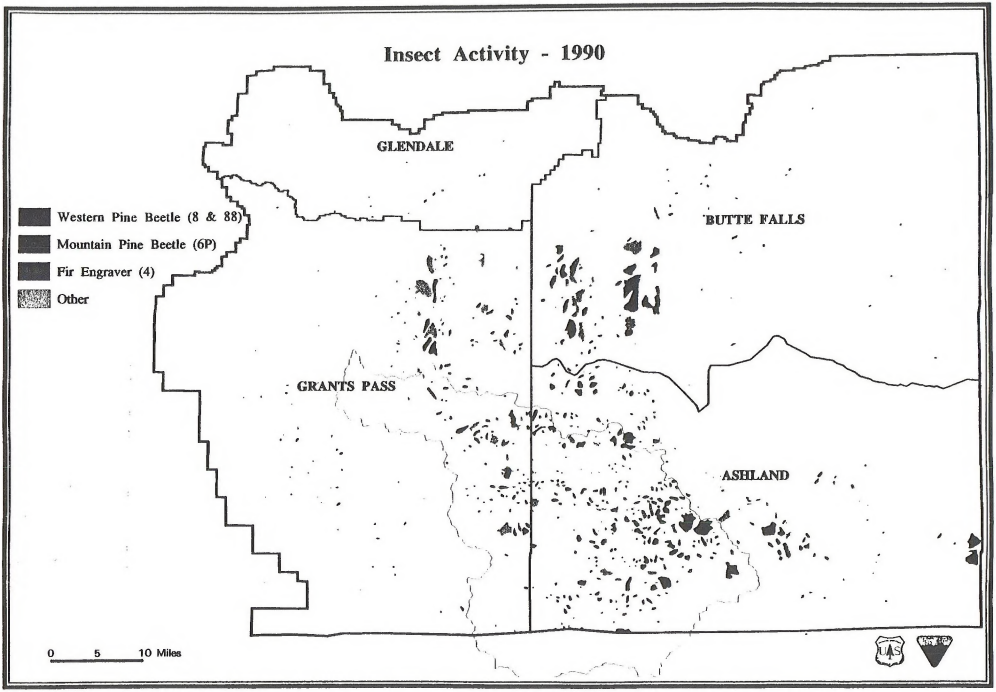
List of Maps

Larger scaled maps are available for review or purchase at the Medford District Office.



Map 1: General Location



Map 2: Areas With Higher Than Normal Mortality Levels Due to Environmental Stress, Insect Attacts, and Disease

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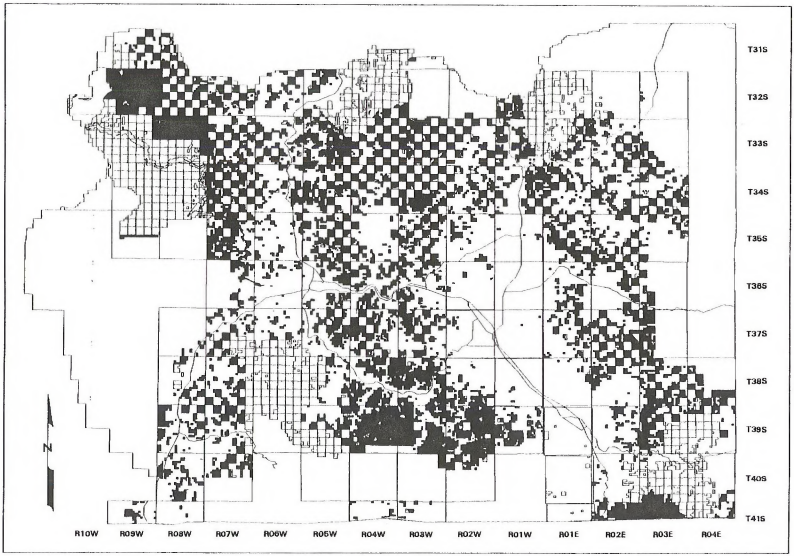
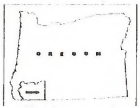
Map 3: BLM Matrix and AMA Lands (611,925 acres)



Salvage Sale
Enviromental Assessment
EA# OR-110-94-35

BLM Lands

Matrix & AMA Lands



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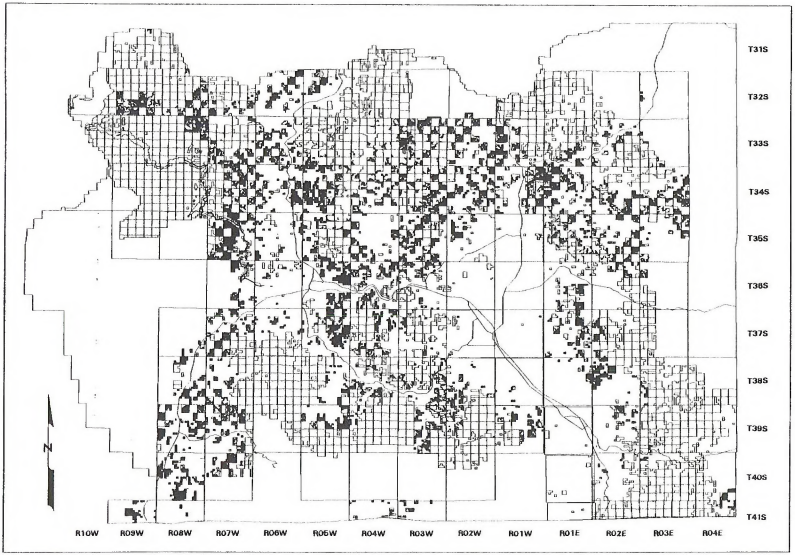
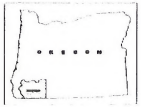
Map 4: BLM Matrix and AMA Lands Available for Salvage (199,726 acres)



Salvage Sale
Enviromental Assessment
EA# OR-110-94-35

BLM Lands

Matrix & AMA Lands



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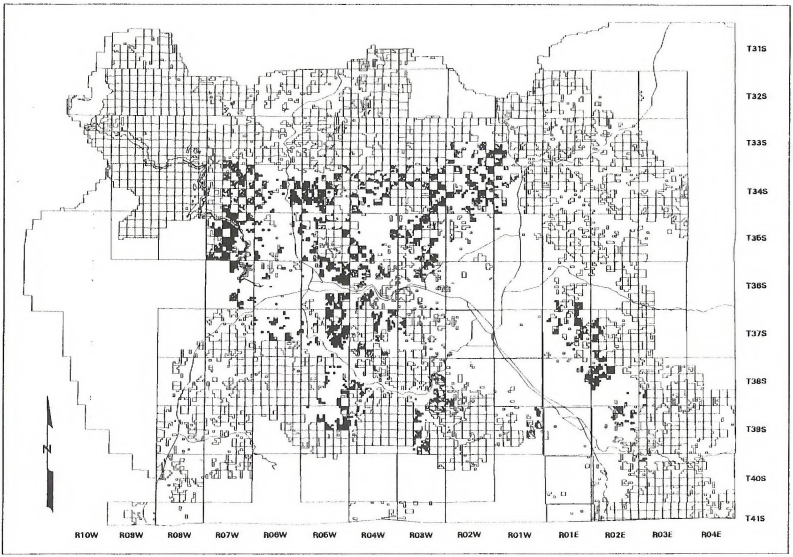
Medford, Oregon

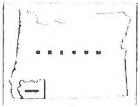
Map 5: BLM Matrix and AMA Lands Analyzed for Salvage (89,956 acres)



Salvage Sale
Enviromental Assessment
EA# OR-110-94-35

BLM Lands

Matrix & AMA Lands



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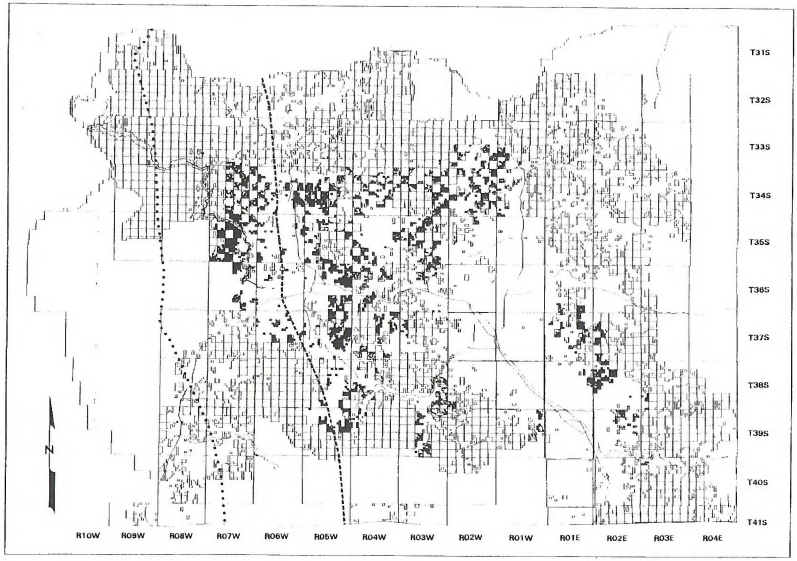
Medford District
Medford, Oregon

Map 6: BLM Matrix & AMA Lands Analyzed for Salvage With Marbled Murrelet Zones 1 & 2



Salvage Sale
Enviromental Assessment
EA# OR-110-94-35

- BLM Lands
- Matrix & AMA Lands
- MM Zone 1 (near)
- MM Zone 2 (far)

List of Appendices

Appendix A: Issues Considered But Not Analyzed in Detail

The following issues were identified during the interdisciplinary (ID) team process through written comments from the public and during open house meetings. After discussing all of the identified concerns, the ID Team determined that these issues either did not fit under the scope of this EA or were not issues that would have a major effect on the human environment.

HELICOPTER SAFETY: BLM recognizes the importance of helicopter safety. However, the expertise, authority, and responsibility for approving helicopter operations and assuring safety standards are adhered to lies with the Federal Aviation Administration (FAA). The EA file contains a copy of the regulations that would apply to helicopter logging operations. If there are concerns about helicopter safety, BLM would contact FAA directly. The public also has the right to contact the FAA and make complaints about helicopter safety concerns.

VISUAL RESOURCES: Because only a few trees per acre would be removed from the forest canopy, and those removed would either be dead or dying, the effects on visual resources as defined in BLM guidance for visual resource management would be negligible. This conclusion is based upon the effects on visual resources from similar types of salvage sales conducted in the Ashland Resource Area between 1990 and 1993.

MARKING GUIDELINES: Concerns have been expressed over how BLM would be able to assure that only dead and dying trees were removed. As stated in the Action Alternatives, some green trees would be harvested when necessary for operational and safety purposes. A set of standardized marking guidelines would be used to identify the trees suitable for harvest. Identification of dead trees is usually not a problem. Identification of dying trees is more difficult. However based on many years of collective experience and using visual and physical evidence, a set of guidelines have been developed to aid in the identification of trees that would most likely be dead within two years. Copies of these guidelines are available for review at the Medford District Office.

RIPARIAN RESERVES: Issues relative to the proper functioning of riparian reserves within the project area include the amount and distribution of large woody debris, stream channel stability, and the amount and composition of riparian vegetation. Implementing the riparian reserves as required by the Standards and Guidelines in the ROD (pp. C 30-31) will have negligible impacts on the functioning condition of riparian reserves within the project area.

WATER QUALITY: Water quality issues on BLM-administered lands within the project area are related to elevated water temperatures, turbidity, and suspended sediments (RMP/EIS. pp 3-14). Maintaining riparian reserves as required in the Standards and Guidelines of the ROD (pp. C 30-31) and implementation of the "best management practices" (BMPs) as stated in the

Features Common to All Action Alternatives section (Chapter II of the EA) are expected to keep potential water quality impacts at minimum levels, particularly in the long term (5+ years). Implementation of the action alternatives are not expected to result in significant adverse impacts either cumulatively or site-specifically on these water quality parameters.

AERIAL LOGGING OPERATIONS VS. GROUND-BASED LOGGING OPERATIONS: While ground- based logging operations are not being excluded, the majority of the logging is expected to be done with helicopters. The scattered nature of the trees over the landscape is not considered conducive to conventional ground-based logging operations.

NONCATASTROPHIC BLOWDOWN: Areas of blowdown larger than five ares are considered catastrophic for the purposes of this EA. For areas less than five acres, the standards for down woody debris identified in the ROD for the FSEIS would be met before any salvage of blowdown would be considered.

FIRE SALVAGE: Different standards and circumstances apply to areas that have been recently burned by wildfire. Salvaging timber from these areas is beyond the scope of this EA and would be addressed under separate EAs.

ROAD CLOSURES: No roads except short spurs to landings would be opened or constructed for this project. The closure of spur roads will be addressed in this EA. Closure of other roads would be addressed in other EAs or done under certain administrative procedures.

ACCESS: Because of the ability to move logs with aerial systems, the need for physical ground access in the traditional sense is not necessary. Also, there is no legal requirement for BLM to have acquired legal access to timber in order to sell the timber.

HABITAT IMPROVEMENT OPPORTUNITIES: Identification, analysis, and implementation of habitat improvement opportunities is beyond the scope of this project. While some opportunities to improve habitat may be identified during the implementation phases of this project, those projects would have to be analyzed under separate EAs.

NATIVE AMERICAN RIGHTS: No known effects on Native American Rights have been identified. See Appendix E for record of contacts with Native American governments.

CULTURAL RESOURCES: All areas of ground disturbance would be surveyed for cultural resource values before any disturbance would be allowed to take place. If cultural resources are found, no ground-disturbing activities would be allowed that would directly or indirectly affect the cultural resources. See Appendix D for a description of the cultural resource clearance procedures to be used on areas where salvage operations are proposed. Also in Appendix D is a copy of the letter from the State Historic Preservation Officer concurring with the survey and protection procedures proposed by the Medford District.

SILVICULTURAL PRESCRIPTIONS: There will be no silvicultural prescriptions prepared for this project, because there would be no vegetative manipulation beyond the salvage of some dead and dying trees. The marking guidelines would serve as the prescription for determining which trees are suitable for harvest.

THREATENED AND ENDANGERED PLANTS: All areas of ground disturbance would be surveyed for threatened or endangered plants before any disturbance would be allowed to take place. If threatened or endangered plants are found, no ground-disturbing activities would be allowed that would directly or indirectly affect the plant population.

AREAS OF CONCERN IN THE MATRIX AND AMA LANDS: Areas of concern in the Matrix and AMA lands such as deer winter range will be addressed in this EA whenever it is determined that they would be affected by this project.

WATERSHED ANALYSIS: This project is not proposed to take place in any of the areas identified as requiring a watershed analysis prior to salvaging timber (U.S. Bureau of Land Management and U.S. Forest Service 1994, p. B 20). While it is the aim of the Medford District to prepare watershed analyses covering all lands in the district, it will be some time before that happens.

MINING CLAIMS AND OTHER RIGHTS ON FEDERAL LANDS: These rights would be protected and any authority for BLM to harvest timber from these areas would have to have been reserved as part of the grant to occupy and use the publics lands.

REENTRY FOR ADDITIONAL SALVAGE LOGGING: There would not be any contract modification to allow reentry into an area where salvage logging has occurred as a result of this analysis. An additional analysis addressing the impacts of the proposed reentry would be conducted before the contract could be modified.

SAFETY: Safety is always a concern but is not an issue to be addressed in this EA. There are standard safety rules and regulations that both BLM and any contractors must adhere to. These rules are enforced by BLM, the Occupational Safety and Health Administration (OSHA), and the Federal Aviation Administration (FAA).

HAZARDOUS MATERIALS: No hazardous materials in excess of 10,000 pounds of hazardous materials would be stored on BLM lands. Any fuels and other petroleum products that would be stored on public lands will be managed under the guidelines established by the Oregon Department of Environmental Quality.

RECREATION: No long-term closures to recreational uses of the lands in the proposed project area are expected. There may be short periods of time when areas of operation are restricted to the public because of safety concerns to both the public and the operators.

PROPERTY LINE/CADASTRAL SURVEY, SCALED SALE VS. LUMP SUM SALES, AND WORK MONTHS: These are all internal administrative issues that have to be addressed as a normal part of doing business. They are outside the scope of this project and will not be addressed in this EA.

AIR QUALITY: Land management activities on the Medford District have three sources of pollution affecting air quality: smoke from slash burning, fugitive dust, and aerosol herbicides (U.S. Bureau of Land Management 1994, pp. 3-6). No slash burning or use of herbicides are proposed for this project. Fugitive dust has not been identified as a significant pollutant. Activities which potentially create fugitive dust are yarding and vehicle traffic on unpaved roads. These activities are normal occurrences within the Medford District. The proposed salvage harvest would be widely dispersed and involve removing a small amount of volume on a given area. Fugitive dust created would be of minor amounts and occur for short durations.

AREAS OF CRITICAL ENVIRONMENTAL CONCERN: No salvage logging activities will take place in any designated or proposed areas of critical environmental concern.

PRIME OR UNIQUE FARMLAND: None of the public lands included in the areas considered available for salvage have been identified or classified as prime or unique farmlands.

WILD AND SCENIC RIVERS: There are no proposed or designated wild and scenic rivers within the areas being considered as available for salvage logging.

WILDERNESS: There are no proposed or designated wilderness areas within the boundaries of the areas being considered as available for salvage logging.

FLOOD PLAINS: Riparian reserves would protect any flood plains from entry for salvage logging under any of the action alternatives being considered in this EA.

Appendix B: Alternatives Considered But Dismissed From Further Analysis

1. **Harvest dead and dying trees across the entire district, including all land use allocations (LUA's).**

   This plan was dismissed after the completion of the FEIS and ROD. At that time, it was decided to confine the proposal to only Matrix and AMA lands. To operate a salvage program in the Late Seral Reserves, RMP-Deferred Watersheds, or Key Watersheds would require analysis beyond the ability of the District to complete in a timely manner.

2. **Harvest dying trees that are projected to be dead within five years.**

   During the initial design and scoping portion of this project, it was decided that limiting the projection time to two years would increase the reliability of the decision on which trees were "dying" to a very high level. Public concern over the ability to identify trees likely to die within the next five years is very high.

3. **Harvest new salvage within the boundaries of the previously logged Ashland RA salvage sales.**

   The Ashland RA interdisciplinary team planned during the design of their salvage sales not to reenter the areas again to remove additional dead and dying trees strictly for salvage purposes for a period of approximately 8 - 10 years. This decision was based on the need to make sure adequate snags come on-line to continue meeting the needs of the ecosystem.

4. **Salvage along all existing roads within the district using OSHA standards for hazard trees along timber haul routes.**

   This alternative was dismissed due to the area being covered by such a proposal. The ID Team felt that it was better to stick to the areas where insect damage was occurring and not to cover the entire BLM transportation system (over 5,000 miles). The potential for controversial calls on what is a "danger" tree is high when discussing salvage along roads, and it was felt the intent of this proposal was to salvage dead and dying trees.

5. **Harvest trees that are rated as high risk because of mistletoe infections.**

   This alternative was dismissed due to its potential high impact in some areas. Mistletoe infections vary across the district, and, in some areas, its occurrence is very high. Harvesting these trees would impact nesting habitat for numerous species and could result in removal of high numbers of trees from some sites.

6. **Manage snag retention to provide the habitat to maintain cavity nesting species at 40 percent or 100 percent of their population potentials.**

   This issue was discussed as a possible set of alternatives. Forty percent retention is spelled out in the ROD, 60 percent was recommended in the draft Medford District RMP, and 100 percent was discussed as a possibility. Initial field estimates indicate that by working at the 60 percent level as a target, we will exceed it most of the time (often exceeding the 100 percent levels) because of non-merchantable material left in class I and II snags. Appendix G contains a diagram of the different snag classes.

7. **Include forest health projects (e.g., density management areas) along with areas proposed for salvage).**

   This alternative was dismissed because the scope and scale of this project would be impossible to handle on the acres being covered by this proposal. Site-specific silvicultural prescriptions would be needed for proposed forest health projects. Medford District is moving forward with numerous types of forest health projects that could be conducted simultaneously with the proposed salvage project. Non-timber type forest health projects (riparian, road rehabilitation, etc.) could be incorporated in the final sale projects but would require separate site-specific analysis.

8. **Yard areas, less than 25 percent slope, using ground-based equipment (tractors, skidders, etc.)**

   This alternative was dismissed due to the fact that the majority of the available area is on steep topography with limited access that does not fit ground-based equipment. Impact analysis for the use of ground-based equipment would require more site specific data than is available for this EA. Therefore, only helicopter logging is being considered except for areas where ground-based equipment can operate from existing roads. In these areas, ground-based equipment can be utilized. In the Ashland Resource Area salvage sales, this occurred on approximately 10 to 15 percent of the salvage area.

Appendix C: Proposed Monitoring Plan for the Medford District Timber Salvage Project

Introduction:

This plan has been prepared to provide a framework for measuring the results of implementing the Decision Record for the Medford District Salvage Project. It will help determine whether land managers met or exceeded the ROD and Standards and Guidelines requirements of the forest plan through implementation of the decision record for the Salvage EA.

The major potential impacts from this action are limited to retention of snags and coarse woody debris. Direct implementation monitoring through post harvest sampling will only be for these two components of the landscape. All other monitoring prescribed by the assessment will be accomplished through the planning of the timber sale and the administration of the timber sale contract.

Generally, implementation monitoring answers the question: Were the objectives documented in the decision record correctly implemented on the ground? This is done by answering the following question:

Question:

Are suitable numbers and classes of snags and coarse woody debris being left within the salvage harvest areas? For those harvest units deficient in coarse woody debris are a sufficient number of conifer snags available for recruitment of future coarse woody debris?

Land Allocation:

Matrix and Adaptive Management Area (AMA) - Suitable Commercial Forest Land (SCFL) and Suitable Woodland Commercial Forest Land (SW-CFL)

Standards:

1. An average of 1.8 Class I and II conifer snags per acre (60% level), based on 40 acre or less sample harvest units, will be retained on land classified as SCFL under the Timber Production Capability Classification (TPCC).

2. An average of 3 Class I and II conifer snags per acre (100% level), based on 40 acre or less sample harvest units will be retained on lands classified as SW-CFL under the TPCC.

3. The size and length of Coarse Woody Debris (CWD) to be left on each acre will be at least three pieces 16 feet in length. The large end diameter will be based on timing of stand development and site conditions. Both hardwoods and conifers in decay classes 1 and 2 will be counted towards meeting these CWD standards.

   For those sample units were the average conifer tree diameter is less than 16 inches DBH, qualifying CWD pieces will have a large end diameter equal to or greater than the average stand DBH. For example, if the average stand diameter is 14 inches then the minimum CWD standard will be three pieces at 14 inches large end diameter by 16 feet long. In units where the CWD standards are not met, additional qualifying recruitment snags will be retained and shall be of a size corresponding to that diameter.

   If the average sample unit conifer tree diameter is 16 inches or larger, the CWD shall be met with pieces 16 inches large end diameter and 16 feet in length for a total of 48 linear feet will be left. Piece count shall have priority over the total length. It is preferable to have a greater piece count left on a per acre basis in order to strive for retention of up to 120 linear feet of CWD per acre.

Monitoring Methodology:

1. A post harvest sample of 10% of the salvage harvested acres within each TPCC allocation (SCFL and SW-SCFL) will be completed based on a random selection of 40 acre or less sample harvest units

2. Average per acre snag and coarse woody debris amounts will be computed based on the sample harvest unit not to exceed 40 acres in size.

3. Reserve acres (e.g. riparian reserves) will not be included in the determination of the average snag or coarse woody debris amounts.

4. Within each harvest unit selected for sample, one plot per 5 acres will be installed. Sample points need to be evenly distributed within the sample unit. Within each sample unit the plots will be located on a systematic grid with a random start.

5. Sample standing snags using a variable plot method and coarse woody debris using a line intercept sampling method.

6. The 40 acre sample unit must contain the same TPCC land classification.

7. Data will be collected and processed using the BLM Stand Exam (Atterbury) procedures to include the CWD module.

8. Monitoring (data collection) will take place within three (3) months of the completion

of harvesting activity on the selected harvest units. Project evaluation will take place within six (6) months of contract termination.

Appendix D: Cultural Resource Clearance Procedures and State Historic Preservation Officer Response

KW

8100(11300)
R. Bonn
8-31-94

Dr. Le Gilsen
State Historic Preservation Office
1115 Commercial Street NE
Salem, Oregon 97310

SEP - 1 ...

Dear Dr. Gilsen:

The Medford District Bureau of Land Management is requesting your comment on our proposed method to perform cultural resource clearance on timber sales to harvest dead and dying trees throughout the District's lands. The District is preparing an Environmental Assessment for salvage operations within the District; the actual salvage projects will be accomplished through a series of timber sales. The same harvest and clearance methods will apply to each sale.

The Salvage Project

The proposal is to conduct salvage operations on lands identified as "matrix" lands in the Record of Decision (ROD) for the Supplemental Environmental Impact Statement (SEIS) that resulted from the President's Forest Plan. No salvage operations will be proposed in Key Watersheds, the previous Ashland Resource Area salvage sales (1990-1993), or in riparian reserves that do not have a completed watershed analysis.

The trees to be harvested are dispersed about the landscape, with an average of 1 - 5 trees per acre. An estimated 80 - 90% of these trees will be removed by helicopter. The remainder will be removed by tractor, using existing roads, and occasionally existing skid trails.

The logging methods proposed (helicopter logging and tractor logging using existing roads) constitute a low physical impact to the land, especially since harvested trees are scattered and occur singly throughout the landscape. We propose the following methods for conducting cultural clearances to meet our responsibilities under the National Historic Preservation Act. We would like your concurrence in this matter.

Cultural Clearance Procedures

1. Prefield Literature Review: A prefield review of the literature and appropriate consultation will locate known cultural resources within the harvest area, and identify any areas of notable concern where even minimal impacts might have an affect. These areas will be avoided during the project.

2. Field Review: Once areas of direct impact (e.g., landings, roads, etc.) have been determined, these areas will be surveyed using standard cultural resource field procedures.

3. Contract Stipulations: Standard contract stipulations for directional falling away from structures, and cessation of activities when cultural materials are located at a worksite, will be in effect. If historic/archaeological materials are located during the course of the project, harvest activity in that area will cease.

4. Sample Survey: In addition to the above procedures, an 8 - 10% sample of high, medium, and low probability lands within the harvest areas will be surveyed. This salvage project provides the Bureau of Land Management with the opportunity and funding to accomplish systematic inventory, which will yield data valuable for constructing predictive models of site occurrence to assist cultural resource work on the District.

5. Report and SHPO Consultation: Upon completion of the above steps, a project report following SHPO guidelines will be submitted, and standard Section 106 procedures will be followed.

If you have any questions, please contact our District Archaeologist, Kate Winthrop at 770-2321.

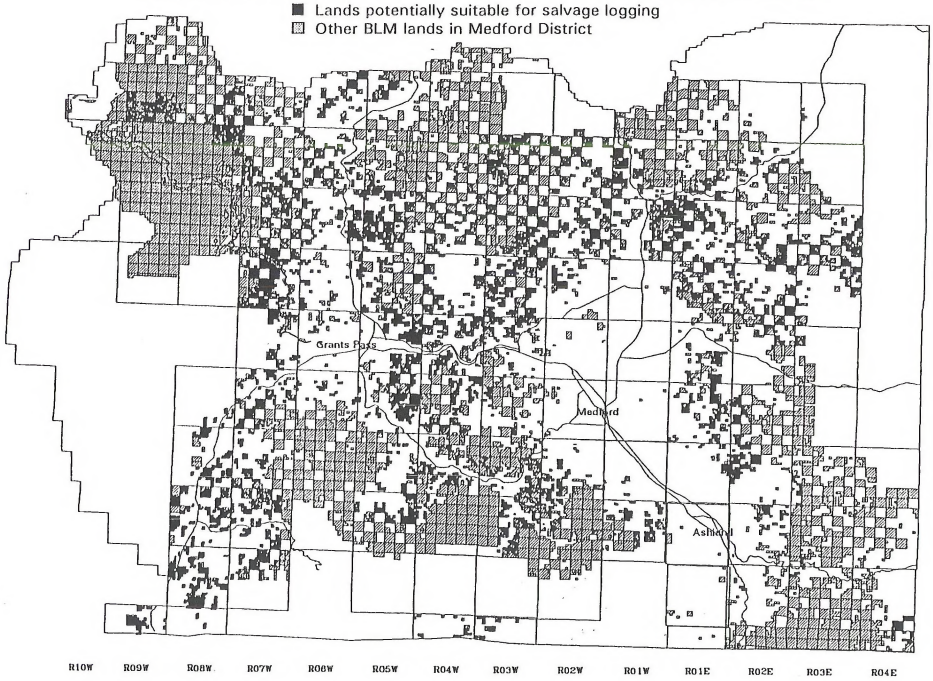
Sincerely,

DAVID A. JONES

David A. Jones
District Manager

1 Enclosure:
Medford DO Map of Potential Salvage Areas

POTENTIAL SALVAGE AREAS - MEDFORD DISTRICT BLM



Oregon

PARKS AND
RECREATION
DEPARTMENT

STATE HISTORIC
PRESERVATION OFFICE

September 8, 1994

David A Jones, District Manager
Medford Bureau of Land Management
3030 Biddle Road
Medford, OR 97504

RE: Dead & Dying Tree Harvest

Dear Mr Jones:

In response to your letter of Sep 1st on dispersed dead and dying trees to be harvested primarily by helicopter logging (80-90%), we concur with the procedures as outlined.

If you have any questions, you can contact me at 503 378-6508 Ext 232.

Sincerely,

Leland Gilsen
SHPO Archeologist

D-4

1115 Commercial St. NE
Salem, OR 97310-1001
(503) 378-5001

Appendix E: Summary of Telephone Comments with Indian Tribes Regarding the Salvage EA

10/27/94

Memo to: File

From: District Archaeologist

Re: Summary of phone comments with Indian tribes, regarding the Salvage EA

Klamath Tribe: On 10/4/94, I spoke with Gordon Bettles, Cultural Resource Co-ordinator. He indicated that the tribe wants a 200' buffer zone around a site or cairn or burial. I told him that this should not be a problem for known sites, which could easily be avoided in this sale.

Confederated Tribes of the Grand Ronde: On 10/4/94 I spoke with Mike Mason (tribal attorney). Their main concern is that logging not destroy "plank trees" (such as red cedars) which have evidence of planks being removed. I indicated that we were unlikely to have such trees on the District; I do not know of any. He would like to be kept on the mailing list for major projects in this area.

Cow Creek Band of the Umpqua Indians: On 9/15/94 I spoke with Sue Shaffer, Tribal Chairwoman. She did not indicate any concerns with the project.

Confederated Tribes of the Siletz: On 9/15/94 I talked with Robert Kentta, Cultural Resource Co-ordinator. He expressed a concern about the operation taking place on the tops or slopes of Table Rocks; I indicated that I did not believe these areas were included [based on the Butte Falls salvage maps which I have seen]. He had other questions regarding the sale, of a natural scientific concern (enough snags for woodpeckers, etc.). I answered these as best I could and referred him to Charlie Boyer.

Kate Whitney

10/27/94

List of Tribes

Cow Creek Band of Umpqua Indians
2400 Stewart Parkway, Suite 300
Roseburg, OR 97470
(503) 672-9405

Chair: Sue Shaffer
Cultural Resources Co-ordinator: Sherry Shaffer

Confederated Tribes of Grand Ronde
9615 Grand Ronde Road
Grand Ronde, OR 97347
(503) 879-5211

Chair: Mark Mercier
Cultural Resource Co-ordinator: Kathryn Harrison
Tribal Attorney: Mike Mason

Confederated Tribes of Siletz
P.O. Box 549
Siletz, OR 97380
(503) 444-2532

Chair: Dolores Pigsley
Cultural Resource Co-ordinator: Selene Lynch, Robert Kentta

Klamath Tribe
P.O. Box 436
Chiloquin, OR 97624
(503) 783-2219

Chair: Marvin Garcia
Cultural Resource Co-ordinator: Gordon Bettles

Coquille Tribe
P.O. Box 1435
Coos Bay, OR 97420
(503) 267-4487

Chair: Ed Metcalf
Cultural Resource Co-ordinator: Sharon Parrish

Appendix F: Special Status Plants

Plants which need to be evaluated and/or inventoried for are listed on Special Status Plant List (Appendix F, pp. 2-7). These plants include federal endangered, federal threatened, federal proposed, federal candidate, state endangered, state threatened, BLM sensitive, and assessment species.

Do a Special Status plant survey/sampling in areas where:

- There is a high probability that Special Status plants might occur. This evaluation would be based on existing records from past surveys, habitat types where plants have been found, and special habitat types such as rocky areas, meadows, and wet areas.
- Survey areas where ground disturbance is expected to occur (e.g., areas planned for helicopter landing construction, and areas where lining of salvage logs to existing roads are expected).
- If the area has never had any surveys done, then some type of sampling of different vegetation types, elevation zones, and topographical aspects would be needed.

BUREAU OF LAND MANAGEMENT
MEDFORD DISTRICT
SPECIAL STATUS PLANT LIST[1]

Scientific Name	Common Name	Status[2]
Adiantum jordanii	California maiden-hair	AS
Agrostis hendersonii	Henderson's bentgrass	FC
Allium bolanderi var. bolanderi	Typical Bolander's onion[3]	AS
Allium bolanderi var. mirabile	Potato bulb Bolander's onion[3]	AS
Allium peninsulare	Peninsular onion	AS
Allium sanbornii var. sanbornii	Sanborn's onion	AS
Ammannia robusta	Ammannia	AS
Androsace elongata ssp. acuta	Long-stemmed androsace	AS
Arabis sp. nov./ined.	Del Norte rockcress	FC
Arabis modesta	Rogue Canyon rockcress[3]	AS
Arabis serpentinicola	Preston Peak rockcress	FC
Arctostaphylos hispidula	Hairy manzanita[3]	AS
Aster brickellioides	Smooth rayless aster	AS
Asarum wagneri	Green-flowered ginger[3]	BS
Astragalus accidens var. hendersonii	Thicket milk-vetch	AS
Astragalus californicus	California milk-vetch	AS
Astragalus gambelianus	Gambel milk-vetch	AS
Astragalus umbraticus	Woodland milk-vetch[3]	AS
Bensoniella oregana	Bensonia[3]	FC
Botrychium crenulatum	Crenulate moonwort	FC
Callitriche marginata	Winged water-starwort	AS
Calochortus coxii	Cox's mariposa lily	FC
Calochortus greenei	Greene's mariposa lily[3]	FC
Calochortus howellii	Howell's mariposa lily[3]	FC
Calochortus indecorus	Sexton Mt. mariposa lily	FC
Calochortus monophyllus	Yellow star-tulip[3]	AS
Calochortus umpquaensis FC/SE	Umpqua mariposa lily[3]	
Camassia howellii	Howell's camas[3]	FC
Camissonia graciliflora	Slender-flowered evening-primrose	AS
Camissonia ovata	Golden eggs	AS
Cardamine gemmata	Purple toothwort[3]	FC
Cardamine nuttallii var. covilleana	Coville's toothwort	AS

Carex buxbaumii	Buxbaum's sedge	AS
Carex gigas	Siskiyou sedge	AS
Carex livida	Pale sedge	AS
Carex saliniformis	Deceiving sedge	AS
Carex serratodens	Saw-tooth sedge	AS
Castilleja hispida ssp. brevilobata	Short-lobed red paintbrush	AS
Cheilanthes intertexta	Coastal lipfern	AS
Chlorogalum angustifolium	Narrow-leaved amole	AS
Cimicifuga elata	Tall bugbane[3]	FC
Cryptantha milobakeri	Milo Baker's cryptantha	AS
Cupressus bakeri	Baker's cypress[3]	AS
Cypripedium fasciculatum	Clustered lady's-slipper[3]	FC
Delphinium nudicaule	Red larkspur	AS
Dicentra pauciflora	Few-flowered bleedingheart	AS
Draba howellii	Howell's whitlow-grass	AS
Epilobium oreganum	Oregon willow herb[3]	FC
Epilobium rigidum	Rigid willow herb[3]	AS
Erigeron cervinus	Deer erigeron	AS
Erythronium howellii	Howell's adder's-tongue[3]	AS
Eschscholzia caespitosa	Gold poppy	AS
Frasera umpquaensis	Umpqua swertia[3]	FC
Fritillaria falcata	Falcate fritillary	AS
Fritillaria gentneri	Gentner's fritillary[3]	FC
Fritillaria glauca	Siskiyou fritillary[3]	AS
Fritillaria purdyi	Purdy's fritillary	AS
Gentiana plurisetosa	Elegant gentian	FC
Gentiana setigera	Waldo gentian[3]	FC
Haplopappus whitneyi spp. discoides	Whitney's haplopappus	AS
Hastingsia atropurpurea	Purple-flowered rush lily[3]	FC
Hastingsia bracteosa	Large-flowered rush lily[3]	FC
Helianthus bolanderi	Bolander's sunflower	AS
Hesperevax acaulis var. robustior	Robust evax	AS
Hesperevax sparsiflora var. brevifolia	Short-leaved evax	AS
Hieracium bolanderi	Bolander's hawkweed[3]	AS
Hieracium greenei	Greene's hawksweed	AS
Horkelia tridentata ssp. tridentata	Three-toothed horkelia	
Howellia aquatilis	Howellia	PT
Iliamna latibracteata	Globe mallow	AS
Isopyrum stipitatum	Dwarf isopyrum[3]	AS
Juncus kelloggii	Kellogg's dwarf rush	AS
Keckiella lemmonii	Bush beardtongue	AS
Leucothoe davisii	Sierra laurel	AS
Lewisia cotyledon var. howellii	Howell's lewisia[3]	FC
Lewisia leana	Many-flowered lewisia[3]	AS

Limnanthes floccosa ssp. bellingeriana	Bellinger's meadow-foam[3]	FC
Limnanthes floccosa ssp. pumila	Dwarf meadow-foam[3]	FC
Limnanthes gracilis var. gracilis	Slender meadow-foam[3]	FC
Linanthus bolanderi	Baker's linanthus	AS
Lipocarpha aristulata	Aristulate lipocarpha	AS
Lithophragma campanulata	Large-flowered hill star[3]	AS
Lomatium cookii	Cook's parsley[3]	
FC/SE		
Lomatium engelmannii	Engelmann's desert-parsley	AS
Lomatium tracyi	Tracy's desert-parsley	AS
Lonicera interrupta	Chaparral honeysuckle	AS
Lotus stipularis var. stipularis	Stipuled trefoil	AS
Lupinus tracyi	Tracy's lupine	AS
Luzula subcongesta	Donner wood-rush	AS
Meconella oregana	White meconella	FC
Microseris douglasii ssp. douglasii	Douglas' microseris[3]	AS
Microseris howellii	Howell's microseris[3]	FC
Microseris laciniata ssp. detlingi	Detling's microseris[3]	FC
Mimulus bolanderi	Bolander's monkey-flower	AS
Mimulus jepsonii	Jepson's monkey-flower	AS
Mimulus kelloggii	Kellogg's monkey-flower[3]	AS
Mimulus pulsiferae	Candelabrum monkey-flower	BS
Mimulus pygmaeus	Pygmy monkey-flower[3]	FC
Mirabilis greenei	Siskiyou four-o'clock	AS
Monardella purpurea	Siskiyou monardella[3]	AS
Montia howellii	Howell's montia	FC
Myosorus minimus ssp. apus var. sessiliflorus	Least mouse tail	FC
Navarretia heterandra	Tehama navarretia	AS
Navarretia tagetina	Marigold navarretia	AS
Nemacladus capillaris	Common nemacladus[3]	AS
Oxypolis occidentalis	Cow-bane	AS
Perideridia erythrorhiza	Red-root yampah[3]	FC
Perideridia howellii	Howell's false-caraway[3]	AS
Phacelia leonis	Leo's phacelia	AS
Pilularia americana	American pillwort	AS
Pinus sabiniana	Digger pine	AS
Plagiobothrys austiniae	Austin's plagiobothrys	AS
Plagiobothrys figuratus ssp.corallicarpa	Coral-seeded allocarya[3]	FC
Plagiobothrys glyptocarpus	Sculptured allocarya	AS
Plagiobothrys lamprocarpus	Shiny-seeded allocarya	FC
Poa piperi	Piper's bluegrass[3]	AS

Poa rhizomata	Timber bluegrass	AS
Poa suksdorfii	Suksdorf's bluegrass	AS
Potamogeton diversifolius	Rafinesque's pondweed	AS
Potamogeton foliosus var. fibrillosus	Leafy pondweed	AS
Ranunculus austro-oreganus	Southern Oregon buttercup[3]	FC
Rhamnus ilicifolia	Red-berried buckthorn	AS
Ribes divaricatum var. pubiflorum	Straggly gooseberry	AS
Romanzoffia "thompsonii," sp. ined.	Thompson's romanzoffia	BS
Rosa spithamea var. spithamea	Ground rose	AS
Salix delnortensis	Del Norte willow[3]	AS
Sanicula peckiana	Peck's snake-root[3]	AS
Scirpus pendulus	Drooping bulrush	AS
Scribneria bolanderi	Scribner's grass	AS
Sedum laxum ssp. heckneri	Heckner's stonecrop[3]	AS
Sedum moranii	Rogue River stonecrop[3]	FC
Sedum oblanceolatum	Applegate stonecrop[3]	FC
Sedum spathulifolium	Purdy's stonecrop	AS
Senecio hesperius	Siskiyou butterweed[3]	FC
Silene californica	California pink	AS
Silene hookeri ssp. bolanderi	Bolander's catchfly	AS
Silene lemmonii	Lemmon's campion	AS
Sophora leachiana	Western sophora[3]	FC
Streptanthus glandulosus	Common jewel flower	AS
Streptanthus howellii	Howell's streptanthus	BS
Trillium angustipetalum	Siskiyou trillium	AS
Triteleia ixioides sp. anilina	Sierra brodiaea[3]	AS
Triteleia laxa	Ithuriel's spear	AS
Utricularia minor	Lesser bladderwort	AS
Veratrum insolitum	Siskiyou false-hellebore	AS
Viola primulifolia ssp. occidentalis	Western bog violet[3]	FC
Wolffia columbiana	Columbia wolffia	AS

Scientific Name	Common Name	Status[2]
Allium campanulatum	Sierra onion	TR
Arabis aculeolata	Waldo rockcress[3]	TR
Arabis koehleri var. stipitata	Koehler's stipitate rockcress[3]	TR
Balsamorhiza sericea	Silky balsamroot[3]	TR
Cypripedium californicum	California lady's-slipper[3]	TR
Cypripedium montanum	Mountain lady's-slipper[3]	TR
Darlingtonia californica	California pitcher-plant[3]	TR
Dicentra formosa ssp. oregana	Oregon bleedingheart[3]	TR
Dichelostemma ida-maia	Firecracker flower[3]	TR
Eriogonum pendulum	Nodding buckwheat[3]	TR
Eriogonum ternatum	Waldo buckwheat[3]	TR
Euonymus occidentalis	Western wahoo	TR
Kalmiopsis leachiana	Kalmiopsis[3]	TR
Lathyrus delnorticus	Del Norte pea	TR
Lewisia oppositifolia	Opposite-leaved lewisia[3]	TR
Lilium pardalinum ssp. wigginsii	Wiggin's lily[3]	TR
Mimulus douglasii	Douglas' monkeyflower[3]	TR
Minuartia californica	California sandwort[3]	TR
Montia diffusa	Branching montia	TR
Nama lobbii	Lobb's nama[3]	TR
Orthocarpus cuspidatus ssp. cuspidatus	Broad-scaled owl-clover[3]	TR
Phacelia verna	Spring phacelia	TR
Smilax californica	California smilax[3]	TR
Thlaspi montanum var. siskiyouense	Siskiyou Mountain pennycresss[3]	TR
Triteleia crocea	Yellow brodiaea	TR
Triteleia ixioides ssp. scabra	Golden triteleia	TR
Vancouveria chrysantha	Yellow vancouveria[3]	TR

[1]As of January 1994.

[2]Federally listed by U.S. Fish and Wildlife Service and the National Marine Fisheries Service:

FE: Federal endangered
FT: Federal threatened
FP: Federal proposed
FC: Federal candidate

State Listed:

SE: State endangered
ST: State threatened

Bureau Sensitive:

BS: BLM sensitive
AS: Assessment species

[3]Known to exist on BLM-administered land in the planning area.

Appendix G: Diagram From the Marking Guidelines Showing the Different Snag Classes

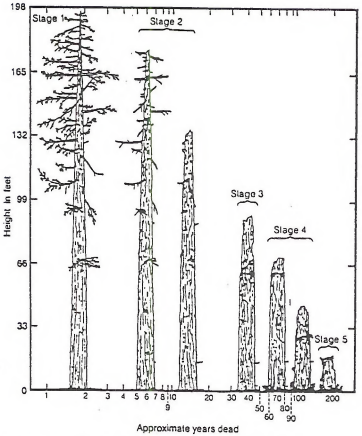


Figure 5.—Five stages of deterioration of Douglas-fir snags (adapted from Cline et al. 1980).

SNAG CLASSIFICATION EXHIBIT

The 5 stages of deterioration of Douglas-fir snags as described in the publication "Management of Wildlife and Fish Habitats in Forests of Western Oregon and Washington" (June, 1985). This pictorial guide and the following description on the next page are to be used as a guideline for determining the stage of snag you are looking at. This call ALSO requires judgement on the behalf of the marker. Not every snag will fit nicely in the "Stage 1" or "Stage 2" category and may be somewhere in between. When in doubt be conservative and call the snag a "Stage 2".

Table 2—Physical characteristics of Douglas-fir snags by deterioration stage, Western Oregon (adapted from Cline et al. 1980, p. 780)

Snag characteristics	Stage of deterioration				
	1	2	3	4	5
Limbs and branches	All present	Few limbs, no fine branches	Limb stubs only	Few or no stubs	None
Top	Pointed	Broken			
Diameter, broken top	Increasing at decreasing rate				
Height	Decreasing at decreasing rate				
Bark remaining %	100	Variable			20
Sapwood presence	Intact	Sloughing			Gone
Sapwood condition	Sound, incipient decay, hard, original color	Advanced decay, fibrous, firm to soft, light brown	fibrous, soft, light to reddish brown	Cubical, soft, reddish to dark brown	
Heartwood condition	Sound, hard, original color	Sound at base, incipient decay in outer edge of upper bole, hard, light to reddish brown	Incipient decay at base, advanced decay throughout upper bole, fibrous, hard to firm, reddish brown	Advanced decay at base. Sloughing from upper bole, fibrous to cubical, soft, dark reddish brown	Sloughing, cubical, soft, dark brown; or, fibrous, very soft, dark reddish brown, encased in hardened shell

The Snag Classification Exhibit is specifically for Douglas-fir. Pine and White fir snags have similar characteristics except for the condition of the sapwood. Stage 1 Pine snags may show signs of blue stain in the sapwood and Stage 1 White fir snags may show initial signs of incipient rot in the sapwood.

Appendix H: Coarse Woody Debris Standards

Coarse woody debris and snags are important factors in soil, wildlife, and fire hazard management. The removal of standing dead trees from the forest will influence the amount of coarse woody debris, specifically large down logs, present on the sites in the future.

The amount of coarse woody debris present on the forest floor of the interior valleys of Southwestern Oregon is a function of several factors. These include vegetation type, age, and disturbance frequency. These factors influence the amount of debris which can be expected to be present at any given moment in time.

The historical (prior to Euro-American settlement) low-severity fire regime with frequent low intensity fire maintained a forest floor relatively low in amounts of coarse woody debris. Forest stocking was less dense in the past, producing lower amounts of woody material available to become debris. Fires burned in August and September when fuel moisture was at its lowest allowing consumption of coarse woody debris. With less material available and season of burning, the coarse woody debris accumulations could not occur within the Interior Valley and Mixed Conifer Vegetation Zones anywhere close to the amounts that exist today (Rose 1994, p. 5).

The forest stand age and stocking level determine numbers and size of down logs found on any given site at a particular moment in time. Spies and Franklin examined young, mature, and old-growth Douglas-fir forests throughout western Oregon and Washington and found significant differences in the numbers of down logs and snags between the age classes in current stands (Spies and Franklin 1991, p. 95). Old-growth stands had higher amounts of logs and had higher amounts of snags with advanced decay than mature and younger stands. A high degree of variation was also found in old-growth stands between moist and dry sites. Dry sites in Oregon had the least amounts of coarse woody debris. This data indicates that amounts of down logs are not constant throughout a given stand's lifetime.

The amount of down logs which should be present on a site at any given time is a function of the combined management objectives for that specific site. This would include soil, wildlife, silviculture, and fire hazard objectives. The amount of coarse woody debris to be retained is not included in the Standard and Guideline for this type of activity. Following guidance from BLM Instruction Memorandum No. OR-95-028, the interdisciplinary team developed a set of standards for this proposed project. The standards were developed to take into account the size of the trees occupying the site at this time.

Following are the coarse woody debris standards which would apply to Alternatives 2 and 3 of the Medford District Timber Salvage Environmental Assessment:

> The size and length of Coarse Woody Debris (CWD) to be left on each acre will be at least three pieces 16 feet in length. The large end diameter will be based on timing of

stand development and site conditions. Both hardwoods and conifers in decay classes 1 and 2 will be counted towards meeting these CWD standards.

For those sample units were the average conifer tree diameter is less than 16 inches DBH, qualifying CWD pieces will have a large end diameter equal to or greater than the average stand DBH. For example, if the average stand diameter is 14 inches then the minimum CWD standard will be three pieces at 14 inches large end diameter by 16 feet long. In units where the CWD standards are not met, additional qualifying recruitment snags will be retained and shall be of a size corresponding to that diameter.

If the average sample unit conifer tree diameter is 16 inches or larger, the CWD shall be met with pieces 16 inches large end diameter and 16 feet in length for a total of 48 linear feet will be left. Piece count shall have priority over the total length. It is preferable to have a greater piece count left on a per acre basis in order to strive for retention of up to 120 linear feet of CWD per acre.

Appendix I. Medford Special Status Species

U.S. FISH & WILDLIFE T&E SPECIES				
SPECIES	STATUS	PRESENCE	IMPACTS (H,M,L)	LEVEL OF SURVEY
Gray wolf	FE, SE	Historic	L	Limited/sporadic
American Peregrine falcon	FE, SE	D	L	*Thorough
Bald eagle	FT, ST	D	L	*Thorough
Marbled murrelet	FT, SC	U	L	Limited/sporadic
Northern spotted owl	FT, ST	D	L	Thorough

U.S. FISH & WILDLIFE FEDERAL CANDIDATE SPECIES				
SPECIES	STATUS	PRESENCE	IMPACTS (H,M,L)	LEVEL OF SURVEY
Spotted frog	FC1, SC, BS	Historic S	L	Limited/sporadic
Del Norte salamander	FC2, SV, SM	D	L-M	Limited/sporadic
Siskiyou salamander	FC2, SV, SM	D	L-M	Limited/sporadic
Southern torrent salamander (formerly Olympic)	FC2, SV	D	L	Limited/sporadic
Cascade frog	FC2, SC	D	L	Limited/sporadic
Foothill yellow legged frog	FC2	D	L	Limited/sporadic
Red legged frog	FC2, SU	D	L-M	Limited/sporadic
Tailed Frog	FC2, SV	D		Limited/sporadic /Incidental
Northwestern pond turtle	FC2, SC	D	L	Limited/sporadic
Northern sagebrush lizard	FC2	D	L	None
Northern goshawk	FC2, SC	D	L-M	Limited/sporadic
Tricolored blackbird	FC2, SP	D	L	Incidental
Western burrowing owl	FC2, SC	Historic	L	Incidental
Mountain quail	FC3	D	L	Incidental
Fringed myotis	C2, SV, BS, SM	D	L	Limited/sporadic
Long eared myotis	FC2, SM	D	L	Limited/sporadic

SPECIES	STATUS	PRESENCE	IMPACTS (H,M,L)	LEVEL OF SURVEY
Long legged myotis	FC2	D	L	Limited/sporadic
Townsend's big eared bat	FC2, SC	D	L	Limited/sporadic
Yuma myotis	FC2	D	L-M	Limited/sporadic
White footed vole	FC2, SP	U	U	None
California red tree vole	FC2-SM	D	U	None
Fisher	FC2, SC	D	L	Limited/sporadic
California wolverine	FC2	Historic (1980s)	U	None
Jenny Creek sucker	FC2, SP	D	L	Thorough
Jenny Creek redband trout	FC2, SP	D	U	Thorough
Umpqua cutthroat trout	Proposed E	D	U	Thorough
Coho salmon	Proposed FE	D	U	Thorough
Steelhead trout (summer & winter)	Proposed FE	D	U	Thorough
Pacific lamprey	FC2	P	L	None
Burnell's False Water Penny Beetle	FC2	S	U	Limited/sporadic
Denning's Agapetus caddisfly	FC2	S	U	Limited/sporadic
Green springs Mt. faurlan caddisfly	FC2	D	U	Limited/sporadic
Schuh's homoplectran caddisfly	FC2	S	U	Limited/sporadic
O'Brien rhyacophilan caddisfly	FC2	S	U	Limited/sporadic
Siskiyou caddisfly	FC2	D	U	Limited/sporadic
Siskiyou chloealtis grasshopper	FC2	S	U	None
Franklin's bumblebee	FC2	D	U	None

OTHER (ODFW AND BLM) SPECIAL STATUS SPECIES)				
SPECIES	STATUS	PRESENCE	IMPACTS (H,M,L)	LEVEL OF SURVEY
Black salamander	SP, AS	D	L-M	Limited/sporadic /Incidental
Clouded salamander	SC, BS	D	M-H	Limited/sporadic /Incidental
California mt. kingsnake	SP, AS	D	L-M	Limited/sporadic /Incidental

SPECIES	STATUS	PRESENCE	IMPACTS (H,M,L)	LEVEL OF SURVEY
Common kingsnake	SP,AS	D	L	Limited/sporadic /Incidental
Sharptail snake	SV, AS	S	L-M	Limited/sporadic Incidental
Acorn woodpecker	SV	D	L	Incidental
Black backed woodpecker	SC,AS	D	L-M	Incidental
Flammulated owl	SC, AS	D	L-M	Limited/sporadic /Incidental
Grasshopper sparrow	SU	U	L	None
Great grey owl	SV, AS, SM	D	L-M	Limited/sporadic /Incidental
Greater sandhill crane	SV	D	L	Incidental
Lewis' woodpecker	SC, AS	D	L	Incidental
Northern pygmy owl	SU	D	L-M	Incidental
Northern saw-whet owl	AS	D	L-M	Incidental
Pileated woodpecker	SC, AS	D	L-M	Incidental
Pygmy nuthatch	SV	S	L-M	None
Three-toed woodpecker	SC, AS	U	L-M	Incidental
Western bluebird	SV, AS	D	L	Incidental
White headed woodpecker	SC	D	L	None
Williamsons sapsucker	SU	S	L	None
Pacific pallid bat	SC, AS	D	L-M	Limited/sporadic
Silver Haired Bat	SM	D	L-M	Limited/sporatic
American marten	SC, AS	D	L	Limited/sporadic
Ringtail	SU	D	L	Incidental

*Grants Pass has areas which have not been surveyed and may have bald eagle or peregrine sites

Status Codes:

FE - Federal Endangered - in danger of extinction throughout a significant portion of its range.

FT - Federal Threatened - likely to become an endangered species within the forseeable future.

FC - Federal Candidate - under consideration for listing as threatened or endangered.

Category 1 - listing is warranted but precluded due to workload.

Category 2 - listing possibly appropriate, but more information needed.

Category 3 - once considered, but no longer under consideration, will be dropped.

SE - State Endangered - listed in danger of extinction by the State of Oregon.

ST - State Threatened - listed as likely to become endangered by the State of Oregon.

SC - State Critical - listing is pending, or appropriate if immediate conservation action not taken.

SV - State Vulnerable - listing is not imminent, and can be avoided through continued or expanded use of adequate protective measures and monitoring.

SP - State Peripheral or naturally rare - populations on the edge of their geographic range, or historically low

numbers due to naturally limiting factors.

SU - State Undetermined - status unclear, insufficient information to document decline to vulnerable.

BS - Bureau Sensitive (BLM) - eligible for addition to the Federal Notice of Review, and known in advance of official publication. Generally these species are restricted in their range and have natural or human caused threats to their survival.

AS - Assessment Species (BLM) - not presently eligible for official federal or state status, but are of concern and which may at a minimum need protection or mitigation in BLM activities.

SM - Survey & Manage - Forest Plan ROD directs protection of known sites and to survey for new sites.

Presence:
D - Documented
S - Suspected
U - Uncertain
A - Absent
T - Possibly transitory

Level of survey:
None
Thorough
Limited/Sporadic
Incidental sighting

Appendix J: Habitat and Occurrence of Special Status Wildlife Species on the Medford BLM District

THREATENED AND ENDANGERED SPECIES

Gray wolf (*Canis lupis*)

The gray wolf is believed to be extinct in Oregon. Purported sightings have created controversy as to whether they actually do exist in southern Oregon. Until confirmed sightings occur, they are considered to be extinct in the Medford BLM district.

Peregrine falcon (*Falco peregrinus*)

Primary habitat is tall cliffs. Two confirmed active sites occur in the Medford district. Occasional sightings are made during the winter months, but these are thought to be migrating individuals. Forest lands provide habitat for prey species for peregrine falcons. Prey is mostly birds, especially doves and pigeons. Peregrines also prey on shorebirds, waterfowl, and passerine birds.

American bald eagle (*Haliaeetus leucocephalus*)

Five nest sites are known in the Medford BLM district, with two on adjoining private lands. Three of these are within the Butte Falls Resource area. In Oregon, the majority of nests (84 percent) are located within one mile of lakes, reservoirs, large rivers, and coast estuaries. Nest trees are larger, dominant or co-dominant trees in the stand and are usually components of old growth or older second growth forests. Prey is fish, waterfowl, small mammals (rabbits, etc.), and carrion.

Marbled murrelet (*Brachyramphus marmoratum*)

The marbled murrelet nests in old growth forests or mature forests with old growth characteristics, including broken tops and deformed branches. Nests are found in large moss or debris-covered sheltered branches that provide protection against rain, wind, and detection by predators.

Marbled murrelets may range as far as 50 miles inland from the ocean. Nesting marbled murrelets have been detected 35 miles inland in Oregon on the Roseburg BLM district.

Northern spotted owl (*Strix occidentalis caurina*)

Old growth coniferous forest is preferred nesting, roosting and foraging habitat, or areas with some old growth characteristics with multilayered, closed canopies with large diameter trees with an abundance of dead and down woody material. Northern spotted owls commonly nest in cavities 50 or more feet above the ground in large decadent old-growth trees. Other nest sites include large mistletoe clumps, abandoned raptor nests, and platforms formed by whorls of large branches. Over 200 northern spotted owl "core areas," 100 acres of the best habitat around activity centers for known sites (as of 1/1/94)

have been designated and mapped as late successional reserves. Prey is primarily small arboreal mammals such as flying squirrels, woodrats, voles, etc., and occasionally small birds.

FEDERAL CANDIDATE SPECIES (C1)

Spotted frog (*Rana prettiosa*)

Spotted frogs are likely extirpated from the Medford district BLM lands. Their habitat is marshy edges of ponds, lakes, or slow moving streams with permanent water where the bottom is soft and muddy. The nearest known population is the Wood River in Klamath County.

FEDERAL CANDIDATE SPECIES (C2)

Del Norte salamander (*Plethodon elongatus*)

Primary habitat is rock talus in conifer forests with a hardwood understory. They can also be found under decaying downed snags and other litter, ranging from sea level to about 4,000 ft. The salamander has a low temperature and moisture tolerance range and usually needs moist forest with high canopy closure. Del Norte salamanders have been found in the Siskiyou mountains on the west side of the Medford BLM district. They may be strongly affected by the removal of old-growth Douglas fir.

Siskiyou salamander (*Plethodon stormi*)

In Oregon, this species is mostly limited to the Applegate River drainage. Habitat is isolated pocket slopes on well forested (mostly north facing) slopes.

Southern torrent salamander (*Rhyacotriton variegatus*)

Formerly known as Olympic salamander. Most records are from the coastal region. Could be present in the western parts of the Medford BLM district. Habitat is mainly conifer forests below 4,000 feet, but not on valley floors. Larvae are found in loose gravel of small streams and seeps. Adults occur in humid coniferous forests near flowing cold water and in spray zones.

Cascade frog (*Rana cascade*)

Found in the Cascade mountains, above 2,600 feet, on the east side of the District. They are most commonly found in small pools adjacent to streams flowing through meadows. They are also found in small lakes, bogs, and marshy areas that remain damp thorough the summer.

Foothill yellow legged frog (*Rana Boylii*)

Habitat is permanent streams with rocky, gravelly bottoms. Distribution is west of the Cascade crest from sea level to 1,800 feet. These frogs are closely associated with water.

Red legged frog (*Rana aurora*)

Red legged frogs prefer slack water of ponds and low gradient streams with emergent vegetation for reproduction. These frogs are found in lower elevations and can be found during the summer months up to 1,000 feet from standing water in humid, old-growth forests and moist meadows.

Tailed frog (*Ascaphus truei*)

Habitat is cold, fast flowing permanent streams in forested areas. Temperature tolerance range is low, 41-61 degrees fahrenheit. Tailed frog are closely tied to water.

Northwestern pond turtle (*Clemmys marmorata marmorata*)

Live in most types of freshwater environments with abundant aquatic vegetation, basking spots, and terrestrial surroundings for nesting and over-wintering. Some northwestern pond turtles leave water in late October to mid-November to overwinter on land. They may travel up to one-quarter mile from water, bury themselves in duff and remain dormant throughout winter. Turtles have been found to generally stay in one place in areas with heavy snowpack but may move up to 5-6 times in a winter in areas with little or no snow. General habitat characteristics of overwintering areas appear to be broad. There may be specific microhabitat requirements, which are poorly understood at this time.

In many areas, predation on the hatchlings and competition from bullfrogs, bass, and other exotic species is limiting population levels. Adult turtles are relatively long lived, but as the adults age, recruitment is not occurring at levels which can maintain future healthy populations.

Northern sagebrush lizard (*Sceloporus graciosus graciosus*)

Most common in sagebrush areas, but it also occurs in open forests of ponderosa and lodgepole pine that have open brushy understories. The lizards are ground dwellers but may occasionally be seen resting on larger branches of sagebrush but never more than a few inches above ground level.

Northern goshawk (*Accipiter gentilis*)

Goshawks are found in a variety of mature forest types, including both deciduous and conifer types. Dense overhead foliage or high canopy cover is typical of nesting goshawk habitat. Perches where they pluck their prey, known as plucking posts, are provided by stumps, rocks, or large horizontal limbs below the canopy.

Tricolored blackbird (*Agelaius tricolor*)

Tricolored blackbirds are found in the interior valleys of southern Oregon, near freshwater marshes and croplands. Individuals have been reported near Roxy Ann Peak, in Sams valley, and near Table Rock.

Western burrowing owl (*Speotyto cunicularia*)

A viable population no longer exists in the Rogue River Valley, where they were formerly present. May occasionally be present in winter. Habitat is sagebrush steppe, grasslands, pastures, and airports where vegetation is sparse and terrain is level.

Fringed myotis bat (*Myotis thysanodes*)

Fringed myotis is a crevice dweller which may be found in caves, mines, buildings, rock crevices, and large old-growth trees. They have been captured in openings and in mid-seral stage forest habitats. Food consists of beetles, butterflies and moths.

Long eared myotis (*Myotis evotis*)

A crevice dweller which is found in coniferous forests in the mountains. Individuals are frequently encountered in sheds and cabins. They have also been found beneath the loose bark of trees. They seldom reside in caves but may occasionally use caves as a night roost. They are not known to occur in large colonies.

Long legged myotis (*Myotis volans*)

Long legged myotis is an open forest dweller which is found in small pockets and crevices in rock ledges, caves and buildings. When in caves, they hang in clumps in deep twilight zones.

Pacific Townsend's big-eared bat (*Plecotus townsendii townsendii*)

Roost in mines, caves, cavities in trees, and attics of buildings. They have low tolerance to changes in temperature and humidity and removal of trees around these sites may change airflow patterns to make the area less desirable as a hibernaculum, maternity, or roosting site. Food consists primarily of moths and other arthropods.

Yuma myotis (*Myotis Yumanensis*)

Yuma myotis is commonly found in human structures, closely associated with water nearby. They will use caves as night roost areas. The species is colonial and hangs in a closely clumped group, often under bridges, in mines and caves.

White footed vole (*Arborimus albipes*)

This uncommon vole occurs in a variety of forest conditions, including logged, burned, and mature forests. The habitat appears to be riparian alder/small stream habitat, most often along streams in heavy cover consisting of down logs and/or brush from sea level to 3,000 feet. They have been found in clearcuts adjacent to heavy cover. Distribution is the western part of the state and inland along the Siskiyou mountains in southern Oregon. It is unknown if they are present in the Medford BLM district.

California red tree vole (*Arborimus pomo*)

An arboreal vole which lives in Douglas-fir, spruce, and hemlock forests. Food consists entirely of leaves of the tree in which they are living. They build a bulky nest, up to the size of a half bushel measure in the branches, usually near the trunk, 15-100 feet above the ground. The nest becomes larger with age and may be occupied by many generations.

Fisher (*Martes pennanti pacifica*)

Habitat is mature and old-growth forests. They appear to be closely associated with riparian areas in these forests. In a study done in Trinity County, California, a preference was shown for conifer forests with some hardwoods present. They seem to prefer 40-70 percent canopy cover. They mainly use large living trees, snags and fallen logs for denning. Occasional sightings on the Medford district, but little information is available as to distribution and density.

California wolverine (*Gulo gulo luteus*)

Wolverine use Douglas-fir, mixed conifer forests. Historic sightings near Medford BLM lands have occurred at White Rock Creek near Oregon Caves (1975) and near Dry Creek, east of Medford, in 1970. Recent wolverine sightings have been reported by fur trappers in the Rogue River National Forest lands adjoining BLM lands. Large areas of medium or scattered mature timber and ecotone areas around cliffs, slides, swamps, and meadows are important habitat components. They appear to prefer remote areas away from humans. Wolverines may use higher elevations in summer and lower elevations in winter.

Jenny Creek sucker (*Catostomus rimiculus ssp.*)

Jenny Creek suckers are present in Jenny Creek and tributaries. They utilize all habitat types, but prefer low gradient partially shaded stream segments with relatively silt free cobble/rubble substrate. Hiding cover such as undercut banks and large woody debris are important habitat components. Food is water penny beetles, stonefly, mayfly, and caddisfly larvae.

Jenny Creek redband trout (*Oncorhynchyus mykiss gibbsi*)

These fish are present in Jenny Creek and tributaries and are currently grouped with the interior redband trout. They use pea size gravel for spawning. Undercut banks, overhanging vegetation, and rocks beneath riffles are used for hiding cover. They need clear, clean water.

Sea run cutthroat (*Salmo clarki*)

Present in the Umpqua River and major tributaries (Cow Creek) in the Glendale Resource Area.

Coho salmon (*Oncorhynchus kisutch*)

Coho are present in most of the larger lower elevation rivers and larger perennial streams on the district. South Coast coho was listed as depressed by the National Marine Fisheries Service in November 1993.

Summer and winter steelhead trout (*Oncorhynchus mykiss*)

Steelhead are present in most of the larger streams on the district in the Rogue River drainage system.

Pacific lamprey (*Lampetra tridentata*)

Present in the Rogue River and larger tributaries. Migrates up river from the ocean and reproduces in the Rogue, Illinois, and Applegate rivers and larger perennial tributary creeks. Little habitat information is available.

Burnell's false water penny beetle (*Acneus burnelli*)

This species has not been found in the Medford BLM district but could be present. Adults are found along small, rapid, low elevation streams, frequently near waterfalls. Larvae were found in rapid sections of a stream in pools of quiet water protected from any current by large boulders. This species has been found in Coos County, Upper Middle Creek, 15 miles southwest of Powers, Oregon.

Denning's agapetus caddisfly (*Agapetus denningi*)

This species has not been found in Medford BLM district but could be present here. No habitat information is available. The only information available is from the life history of *A. taho*, a similar species, which is found in cool, mid- to large-size streams of moderate gradient in forested areas over a large elevation range. A single specimen was collected in Rogue River National Forest.

Green springs Mt. farulan caddisfly (*Farula davisi*)

Species of *Farula* inhabit cool, highly humid areas. This species was collected near a small stream with a marshy area nearby. One is probably the habitat. Two adult specimens were collected from Green Springs Mountain, 10 miles east of Ashland near a large stream.

Schuh's homoplectran caddisfly (*Homoplectra schuhi*)

Larvae are found in spring-seepage habitats in forested montane areas. *Homoplectra* sp. are found in streams with moderate to close shading from a forest canopy with most sites having a mixed deciduous-conifer canopy. The distribution of the species appears to be limited with specimens found in the Cascade and Coast range mountains of southwestern Oregon and northern California, where suitable habitat is found.

O'Brien rhyacophilian caddisfly (*Rhyacophila colonus*)

Species of this group inhabit clear, usually cool, creeks. Some prefer riffle areas but others do not. The habitat and ecology of this genus is poorly understood. A single specimen was collected from the vicinity of O'Brien in Josephine County.

Siskiyou caddisfly (*Tinodes siskiyou*)

Adult collection records indicate the larvae are associated with mid-size streams with moderate to dense shading from a mixed hardwood/conifer overstory. Adults have been collected adjacent to both cool, spring-fed streams and from streams with a high annual

temperature range. Members of this genus have been found from the coastal mountains of northern California and from two disjunct populations in Oregon, one from the Squaw Lakes region of the Rogue River National Forest, 10 miles southwest of Medford.

Siskiyou chloealtis grasshopper (*Chloealtis aspasma*)

This species has been found in the Siskiyou Mountains near Mt. Ashland and near Willow Lake. Appears to be associated with elderberry plants. Females lay eggs in the pith of elderberry plants.

Franklin's bumblebee (*Bombus franklini*)

Franklin's bumblebee has been found in herbaceous grasslands between 1,400-4,000 feet elevation. Activity spans the entire blooming season, so they do not appear restricted to a particular host or flower. Adults probably present and in active flight from May (on warm sunny days) through early September. Range restricted to southwestern Jackson County, Oregon, perhaps southeastern corner of Josephine County, perhaps part of northern California.

FEDERAL CANDIDATE SPECIES (C3)

Mountain quail (*Oreortyx pictus*)

Commonly found in forests above the interior valleys in the Medford district. These quail use a variety of habitats, including open meadow, shrub fields, other openings, and forested stands. Mountain quail are more common than originally thought and unless a downward population trend is observed, will likely be removed from the USFW sensitive species list within the next two years.

OREGON STATE SENSITIVE SPECIES

*(C=critical, V=vulnerable, P=peripheral, U=undetermined)

Black salamander (*Aneides flavipunctatus*)

Black salamanders have been found in extreme southwestern Oregon. Habitat preference is conifer forests, mixed conifer/deciduous forest and open hillsides from sea level to 5,000 feet, often near streams. Occurs mainly under ground litter such as bark and rocks and in moist crevices.

Clouded salamander (*Aneides ferreus*) <U>

Habitat requirements are forest and forest edges from sea level to 1,500 meters. There is a correlation between clouded salamander abundance and large conifers as well as down woody material. They occur mainly under loose bark in decayed, standing and fallen snags, and stumps. They have been found as high as 20 feet in trees. May also be found in cracks in cliff rocks, under moss and leaf litter.

California mountain kingsnake (*Lampropeltis zonata*) <P>
Habitat includes oak and pine forests. Found under or inside rotting logs and in talus areas. They are not common and are mostly found in the western part of the District.

Common kingsnake (*Lampropeltis getulus*) <P>
In Oregon, they are found only in Douglas, Jackson, and Josephine Counties in the more mesic river valleys. Common kingsnake inhabit oak/pine woodlands, open brushy areas, and river valleys, often along streams, and in thick vegetation. They may also be found in farmlands, especially near water areas.

Sharptail snake (*Contia tenuis*) <V>
Habitat is conifer forests and oak grassland edges. Found in rotting logs, moist talus, under rocks, boards, or other objects, mostly in interior valleys.

Acorn woodpecker (*Melanerpes formicivorus*) <V>
Found in the Rogue river valley and surrounding foothills. Preferred habitat is oak woodlands, riparian areas, and mixed conifer oak forests which have high canopy closure. Excavates nests and nest cavities in oaks and other trees. Store acorns in holes excavated in thick bark or other soft dead wood.

Black-backed woodpecker (*Picoides arcticus*) <C>
Presence is undetermined in the Medford BLM district. Has been documented in Cascade Mountains in Jackson County and in the Siskiyou Mountains in Josephine County. In Oregon, the black-backed woodpecker tends to occur in lower elevation forests of lodgepole pine, ponderosa pine, or mixed pine/conifer forests. Dead trees used for foraging have generally been dead three years or less.

Flammulated owl (*Otus flammeolus*) <C>
Habitat is a mosaic of open forests containing mature or old-growth ponderosa pine mixed with other tree species. In California, habitat included conifer and black oak. Nests mainly have been located in abandoned northern flicker or pileated woodpecker cavities. The presence of dense conifers for roosting may be a necessary habitat components. Feeds mostly on insects. May also eat other arthropods and small vertebrates.

Grasshopper sparrow (*Ammodramus savannarum*) <U>
Grasshopper sparrows inhabit grasslands which have some shrubs. Populations have been reported near White City and Eagle Point in Jackson County.

Great gray owl (*Strix nebulosa*) <V>
Habitat preference is open forest or forest with adjoining deep-soil meadows. Nest in broken top trees, abandoned raptor nests, mistletoe clumps, and other platforms created by whorls of branches. Majority of nests in one study were in overmature or remnant stands of Douglas-fir and grand fir forest types on north facing slopes. Probably found in low densities across the district.

Greater sandhill crane (*Grus canadensis tabida*) <V>

A spring and summer resident of Oregon, sandhill cranes roost, nest, and rear young in wet meadows, including wild, irrigated hay meadows, and shallow marshes. The cranes may use agricultural croplands for feeding during nonnesting season. Sandhill cranes have been observed on the Ashland Resource Area near Howard Prairie and Hyatt Lake and in the Butte Falls Resource area near the communities of Prospect and Butte Falls.

Lewis' woodpecker (*Melanerpes lewis*) <C>

These woodpeckers breed sparingly in the foothill areas of the Rogue and Umpqua river valleys in Douglas, Jackson, and Josephine counties. Habitat preference is hardwood oak stands with scattered pine near grassland shrub communities. Breeding areas in the Rogue valley are uncertain. In some locales, the woodpeckers breed in riparian areas having large cottonwoods and in oak conifer woodlands. They usually do not excavate nest cavities but most often use cavities excavated by other woodpecker species. They winter in low elevation oak woodlands.

Northern pygmy owl (*Glaucidium gnoma*) <U>

Believed to be present across district. Population numbers and trends are unknown. Habitat needs are not clear, but the species is regularly recorded in forested areas of numerous types and age classes in Oregon, most commonly along edges of openings such as clearcuts or meadows. Nests in tree cavities excavated by woodpeckers. Feeds on insects, small vertebrates, and birds.

Northern saw-whet owl (*Aegolius acadicus*) <BLM assessment>

Believed to be present across the district. Population numbers and trends are unknown. Habitat is dense conifer and mixed conifer/hardwood forests. Nest in abandoned woodpecker holes and natural cavities. Feed on small mammals and birds.

Pileated woodpecker (*Dryocopus pileatus*) <V>

Pileated woodpeckers are common across the Medford BLM district. They are found mainly in old-growth and mature forests, but can feed in younger forests and clearcuts. A new nest is excavated each year. They mainly use dead trees that have the strength to handle a nest cavity that averages 8 inches wide and 22 inches deep ($\geq$20 inches dbh). Pileated woodpeckers excavate an new nest each year and need 1-2 hard snags per 100 acres. Studies show that the pileated woodpeckers need about 45 large trees with existing cavities in their home range (300-1,000 acres) to provide roosting habitat.

Pygmy nuthatch (*Sitta pygmaea*) <V>

Habitat is mature and old-growth ponderosa pine, especially open stands with less than 70 percent canopy. The birds will forage in young ponderosa pines. It nests and roosts in cavities more than 20 feet from the ground that are located in large dead or decaying ponderosa pines which usually exceed 20 inches DBH. It excavates its own nest cavities which are often started in a fissure in a soft snag. Found in the Cascade mountains. Pygmy nuthatch populations drop significantly with timber harvest and snag removal.

Three toed woodpecker (*Picoides tridactylus*) <C>

Presence is undetermined in the Medford BLM district. Range is along the crest of the Cascade Range and eastward. Generally found in higher elevation forests, above 4,000 feet. In eastern Oregon, three-toed woodpeckers nest and forage in lodgepole pine forests. They are occasionally found roosting in hemlock and Engelmann spruce trees in mature and overmature mixed conifer forests. Bark beetle larvae are primary food source.

Western bluebird (*Sialia mexicana*) <V>

In western Oregon, western bluebirds nest in open areas near farms and in clearcuts in standing snags. They nest in natural cavities, old woodpecker holes, and in nest boxes.

White headed woodpecker (*Picoides albolarvatus*) <C>

Presence in the BLM Medford district is undetermined. White headed woodpeckers occur in ponderosa pine and mixed ponderosa forests. They forage mainly on trunks of living conifers for insects. Nest cavities are within 15 feet of ground in dead trees which have heart rot. Standing and leaning snags and stumps are used. Area is in periphery of known range.

Williamson's sapsucker (*Sphyrapicus thyroides*)

Presence in the Medford BLM district is undetermined. Mostly found in forested area on the east slopes of the Cascade Mountains, mainly in mature and old-growth ponderosa pine with a grand fir component. They mostly feed on grand fir sap but occasionally glean insects.

Pallid bat (*Antrozous pallidus*) <V>

This bat is a crevice dweller. Rock crevices and human structures are used as day roosting sites. Recent radiotelemetry studies indicate that these bats also use interstitial spaces in the bark of large conifer trees as a roost site. One colony of pallid bats was observed roosting in a hollow tree. Food consists of beetles, grasshoppers, moths, and other insects found on or near the ground or on grasses or shrubs.

American martin (*Martes americana*) <C>

Martins inhabit mature and old-growth forests that contain large quantities of standing and downed snags and other coarse downed woody material, often near streams. They often use down logs for hunting and resting. They feed on small mammals, birds, fruits, and insects.

Ringtail (U) (*Bassariscus astutus*) <U>

Ringtails are most commonly found in areas having cliffs, rocky terrain near water, riparian hardwoods, and sometimes conifers. They nest in hollow trees, brush piles, caves, and abandoned buildings. They are encountered infrequently across the District.

*C = Critical-species for which listing as threatened or endangered is pending.
V = Vulnerable-species for which listing as threatened or endangered is not believed to be imminent and can be avoided through continued or expanded use of adequate protective measures and monitoring
P = Peripheral-species whose Oregon populations are on the edge of their range.
U = Undetermined-species whose status is unclear. They may be susceptible to decline.

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Appendix K: Bureau of Land Management Oregon State Office Instruction Memorandum, Number OR-95-028

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Oregon State Office
P.O. Box 2965 (1300 N.E. 44th Ave.)
Portland, Oregon 97208

In Reply Refer to:
5400(931)

November 29, 1994

Instruction Memorandum No. OR-95- 028
Expires 09/30/96

To: District Managers: Salem, Eugene, Roseburg, Coos Bay, Medford, and Lakeview

From: State Director

Subject: Implementation of Coarse Woody Debris Standards and Guidelines

The Regional Ecosystem Office (REO) has provided guidance from the Research and Monitoring Committee (RMC) for implementation of the Coarse Woody Debris (CWD) Standards and Guidelines (S&G). These guidelines apply for regeneration harvest and partial harvests (Record of Decision, C-40).

The Special Provision for regeneration harvest should read as follows:

> "A minimum of (120) (240) linear feet of logs per acre, averaged over the cutting area and reflecting the species mix of the unit, will be retained in the cutting area as shown on Exhibit A. All logs shall have bark intact, be at least (16) (20) inches diameter at the large end, and be at least (16) (20) feet in length. Logs shall be distributed throughout the cutting area, and not piled or concentrated in a few areas. Where logs are available and safety considerations permit, a minimum of (based on ID Team recommendation) linear feet of logs shall be retained on each acre of the cutting unit as directed by the Authorized Officer."

Apply the first set of specifications (120 linear feet; 16 inches; 16 feet) to sales south of the Willamette National Forest and the Eugene BLM District, or east of the Cascades. Apply the second set of specifications (240 linear feet; 20 inches; 20 feet) to sales north of and including the Willamette National Forest and Eugene BLM District.

The RMC recommended that the minimum linear feet to be retained on each acre be established by an interdisciplinary team (ID Team) based on the availability of CWD and the

site conditions. This approach was identified as consistent with the objectives of the S&G and several related S&Gs. We recommend that steepness of slopes and stand density be considered in arriving at a reasonable and attainable minimum.

The Special Provision for partial harvest should apply the same basic principles, but they should be modified to reflect the timing of the stand development cycles where partial harvest is practiced. The RMC specified that:

1. The application is difficult in stands being thinned or in density management prescription implementation when harvest trees are generally less than 18-20 inches DBH.

2. The ID Team should modify the guidelines based on the timing of stand development and site conditions, including current CWD, availability of logs, and future production of CWD.

3. It is not necessary to fall reserve trees to provide down logs. Reserve trees provide opportunities to meet snag and CWD objectives later in the rotation.

A copy of the REO correspondence, which is the basis for our guidance, is attached for your reference.

Daryl L. Albiston
Acting Associate State Director

1 Attachment
1 - REO memo to BLM dated 10/13/94 (4 pp)

Distribution
WO-230 (Room 204 LS) - 1
OR-930 - 1
OR-931 - 1

REGIONAL ECOSYSTEM OFFICE

P.O. Box 3623
Portland, Oregon 97208
(503) 326-6265
FAX: (503) 326-6282

MEMORANDUM

DATE: October 13, 1994

TO: Elaine Zielinski, BLM State Director OR/WA

FROM: Donald R. Knowles, Executive Director Donald Knowles

SUBJECT: Interpretation of Coarse Woody Debris Requirements in the Record of Decision (letter of August 23, 1994)

By letter of August 23, 1994, you requested concurrence by the Regional Ecosystem Office (REO) with the Bureau of Land Management's interpretation of the Coarse Woody Debris (CWD) requirements in the Record of Decision.

The REO referred your request to the Research and Monitoring Committee (RMC) for review of the CWD Standards and Guidelines (S&G). The RMC has completed it's review of the proposed contracts provision and their report is enclosed.

The RMC report provides a clarification of the method of measurement for complying with the Standards and Guides. The RMC also directs your attention to the differences in the CWD S&G for regeneration harvests and partial harvests.

Should you desire further assistance on this matter, please feel free to call either myself or Dan McKenzie (503-326-6350).

Enclosure

cc:
Mike Crouse

OR910 ROUTING:
(10/17/94 -D Knowles)
OR910-SD
OR910.1-ASD
OR912-PA
OR913-EEO
OR914-RPLE
OR920-MIN
OR930-LRR
OR940-OPS
OR950-ADM
OR955-PMU 1730 PFF
W. DISTRICTS
E. DISTRICTS
OTHER:

XeAction / CeCopy

Attachment 1-
K-3

REGIONAL ECOSYSTEM OFFICE

P.O. Box 3623
Portland, Oregon 97208
(503) 326-6265
FAX: (503) 326-6282

MEMORANDUM

DATE: October 11, 1994

TO: Don Knowles, Executive Director

FROM: Dan McKenzie, Research and Monitoring Committee

SUBJECT: Review of BLM's Interpretation of Standards and Guidelines for Retention of Coarse Woody Debris.

As requested in your letter of September 6, 1994, the RMC has reviewed BLM's interpretation and suggests an alternative contract provision that is consistent with BLM's proposal and the intent of the Coarse Woody Debris (CWD) Standards and Guidelines (S&G) for regeneration harvests (ROD, C-40). We intend that this example contract provision for retention of 120 linear ft. per acre is applied to sales south of the Willamette National Forest and the Eugene BLM District, or east of the Cascades. For areas north of and including the Willamette National Forests and Eugene BLM District, the length (240 ft.) and diameter (20 in.) requirements remain the standard and would modify the contract provision when applied to those areas. Further, the RMC noted that no distinction was made (in the August 23, 1994 letter) between the contract provision for regeneration harvest and partial harvests. The RMC interpreted the sample contract provision as proposed to be applied only to regeneration harvest related sales and that appropriate modifications would be made for partial harvests. A short note appears at the end of this letter that provides additional material for consideration when implementing the CWD S&G to partial harvests.

The objective of the coarse woody debris standard is to assure that minimum levels of CWD are retained "well distributed across the landscape" and "for maintaining populations of ... organisms that use this habitat structure" (ROD, C-40). The linear feet of logs standard was not meant to apply as an exact amount on each individual acre (Starkey and Tappeiner, pers. comm. 9/94). It is recognized that site characteristics will result in more coarse woody debris in some areas of the cutting unit than others, which is not inconsistent with the intent of the S&G. However, the intent is that logs will be well distributed and it will not be appropriate to concentrate material in a few locations within the cutting unit.

We propose the following alternative to your proposed example contract provision for a 10-acre regeneration harvest sale:

> "A minimum of 120 linear feet of logs per acre, averaged over the cutting area and reflecting the species mix of the unit, will be retained in the cutting area as shown on Exhibit A. All logs shall have bark intact, be at least 16 inches diameter at the large end, and be at least 16 feet in length. Logs shall be distributed throughout the cutting area, and not piled or concentrated in a few areas. Where logs are available and safety considerations permit, a minimum of 50 linear feet of logs shall be retained on each acre of the cutting unit as directed by the Authorized Officer."

Our recommendation is based on examination of three aspects of the CWD S&G: 1) average over cutting unit versus amount per individual acre, 2) minimum diameter of logs, and 3) minimum linear feet on any individual acre.

1. Use of an average per acre over the unit, or total across the unit, as the measurement to determine compliance with the S&G for CWD is consistent with the scientific author's intent (Starkey and Tappeiner, pers. comm. 9/94). In addition, it is consistent with the CWD S&G's for northern California National Forests as prescribed in the ROD C-40, and described in the Draft Forest Plans. As an example, the Mendocino NF Plan is: "Maintain a minimum of three recently-downed logs per acre, averaged over 40 acres." (IV-37) Further, the average per-acre measurement is consistent with the closely associated Standard and Guide for snag retention: "with per-acre requirements met on average areas no larger than 40 acres" (ROD, C42).

2. The proposal to measure the log diameter at the small end, while consistent with the CWD S&G, is a more restrictive requirement than measurements at the large end. Measurements at the large end are designated for the northern California National Forests, draft Forest Plans: "greater than 20 inches in diameter (large end)" (Mendocino NF Draft Plan IV-37). The RMC concluded that the log diameter requirements of the S&G could be met by a uniform approach of measuring the CWD logs at the large end.

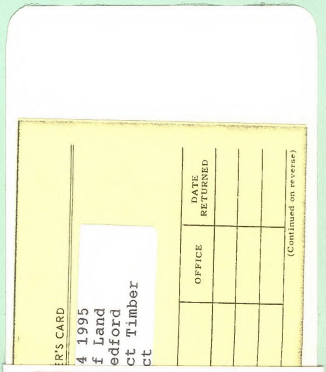
3. The RMC recommends that the "minimum ... on each acre," be established by the interdisciplinary team to reflect availability of CWD and site conditions. While not explicitly required by the CWD S&G, providing a minimum per acre is consistent with the objectives of the S&G and several related S&G's. Examples of related S&G's are: "maintain 5 to 20 pieces of coarse woody material per acre," (Klamath NF Draft Plan, 4-19) and "4 to 6 logs," (Shasta-Trinity National Forest Draft Plan, 4-45). The RMC does not consider the current proposal of "a minimum of fifty(50)" to be a recommendation to establish a new minimum CWD S&G.

Coarse Woody Debris Standards and Guidelines for partial harvest.

> "In areas of partial harvest, the same basic guidelines should be applied, but they should be modified to reflect the timing of the stand development cycles where partial harvest is practiced" (ROD, C-40).

We recognize that interpretation of these guidelines is difficult for stands which are being thinned or in which density management prescriptions are being implemented, especially when the harvested trees are generally less than 18 to 20 inches DBH. In partial harvest situations, the interdisciplinary team should modify the guidelines based on timing of the stand development and site conditions, including current CWD, availability of logs, and future production of CWD.

During partial harvests early in the rotational cycle, it is not necessary to fell the larger dominant or codominant trees to provide logs. These trees will provide opportunities for CWD later in the rotational cycle, plus as these larger trees die from natural mortality, some can be retained to provide snags and future CWD.



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DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
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